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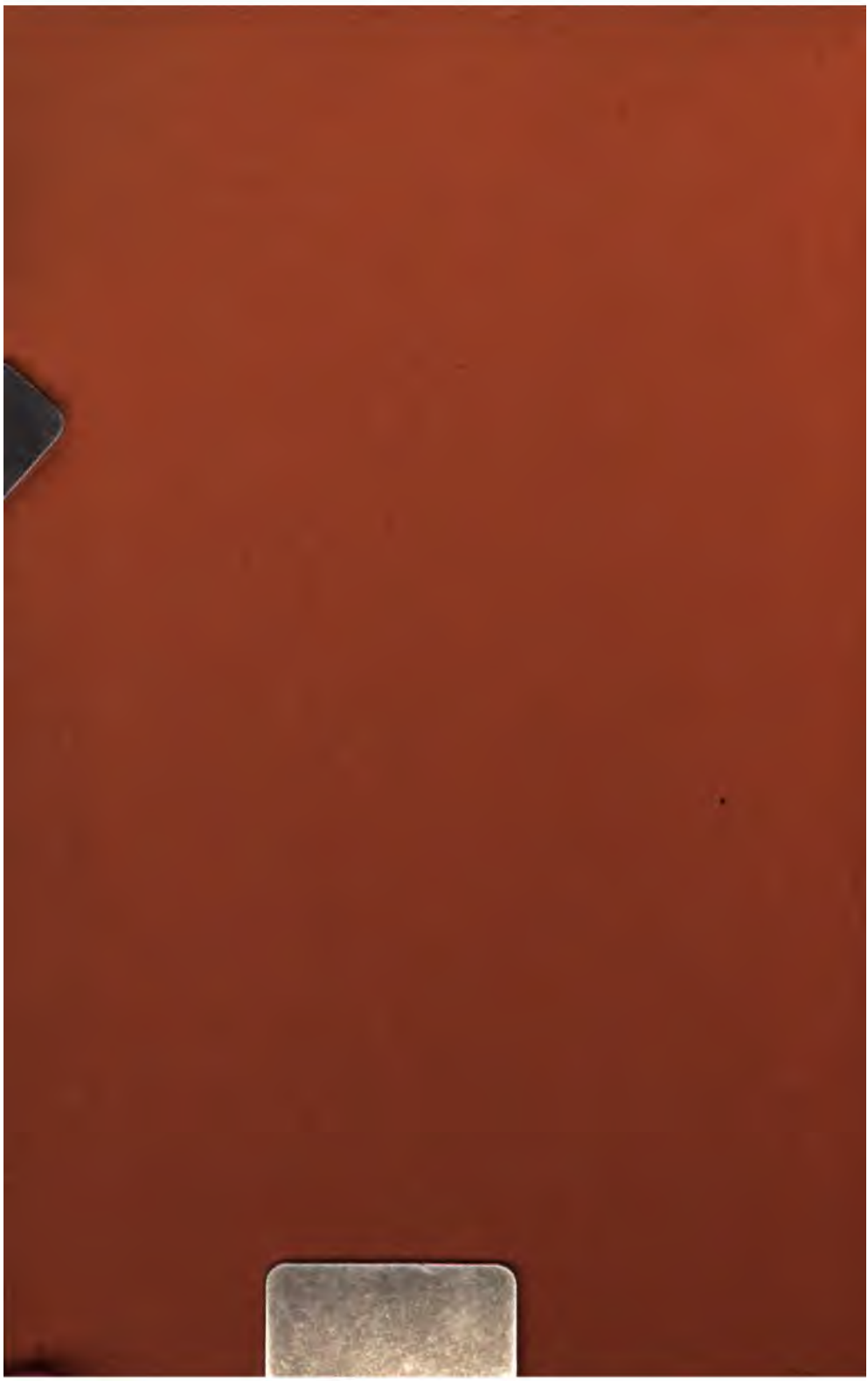
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THE

JOURNAL

OF THE

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ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.



VOL. XI.

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ERRATA.

Page 21, line 7 from bottom, for "Antananariv" read "Antananarivo."
„ 44, „ 6 for "loose" read "lose."
„ 53, „ 8 „ "L. E. Peal" read "S. E. Peal."
„ 134, „ 33 „ "*palæological*" read "*palæontological.*"
„ 289, „ 38 „ "ērem-châugala" read "ērem-châugala."
„ 294, heading, „ "*Andamese*" read "*Andamanese.*"
„ 297, line 19 „ "*D. ontogonum*" read "*D. octogonum.*"



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Haulard imp.

Monumental Heads from Mallicollo.

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THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

FEBRUARY 8TH, 1881.

Major-General A. PITT RIVERS, F.R.S., *President, in the Chair.*

The Minutes of the last ordinary meeting were read and confirmed.

It was announced that the following gentlemen had been elected Members of the Institute:—ARTHUR GERALD GEOGHEGAN, Esq.; E. H. MAN, Esq.; BRUNO MÜLLER, Esq.; and OWEN ROBERTS, Esq., M.A.

The following list of presents was read, and the thanks of the meeting were voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Critica e Riforma del metodo in Antropologia. By Professor Enrico Morselli.

From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—Zeitschrift für Ethnologie, 1880, Hefte 4, 5.

From the GERMAN ANTHROPOLOGICAL SOCIETY.—Archiv für Anthropologie. Band xiii, Hefte 1, 2.

—— Correspondenz-Blatt, January, 1881.

From the SOCIETY.—Journal of the Asiatic Society of Bengal. Vol. xlix, Part 1, No. 1; Part 2, No. 2.

—— Journal of the Society of Arts. Nos. 1469–72.

—— Bulletin de la Société Impériale des Naturalistes de Moscou, 1880, No. 2.

From the SOCIETY.—Bulletin de la Société de Borda à Dax, 1880, No. 4.
—— Mittheilungen des Vereins für Erdkunde zu Halle a. s., 1877-80.
—— Proceedings of the Royal Geographical Society. Vol. iii, No. 2.
From the INSTITUTE.—Bulletins de l'Institut Géographique International.
From the ASSOCIATION.— Proceedings of the Geologists' Association. Vol. vi, No. 8.
—— Report of the Fiftieth Meeting of the British Association. Swansea, 1880.
From the INSTITUTION.—Journal of the Royal United Service Institution. No. 108.
From the EDITOR.—"Nature," Nos. 585-588.
—— Revue d'Anthropologie, 1881, No. 1.
—— Revue Scientifique, 1881, Nos. 3-6.
—— Matériaux pour l'histoire de l'homme, 1880, Liv. 9, 10.
—— Revue Internationale, 1881, No. 1.

Mr. W. L. DISTANT exhibited some shell chisels from Barbadoes, received from Prof. W. J. Sollas, of Bristol; and read the following extract from a letter on the subject by Mr. Joseph Forte, of Bennetts, Barbadoes, dated December 11th, 1879:—

"*Note on* CARIB CHISELS.

"The 'Carib Chisels,' as they are called in this island, are obtained from different parts, and the greater portion of them lie on or near the surface of the soil. Those I sent home were taken, with about 100 more, from a cave, and were found 6 or 8 inches below the surface. The cave is 350 feet above the sea level, and is situated at a distance of 2 miles from the sea: it is about 40 feet in length and 20 feet in breadth. It is entered below from the side of a cliff, about 50 feet high, and with greater difficulty from above. A few negroes have been known to enter it, but no negro remembers any white man climbing into it until the present time. The sides of the cave have white earth or loam attached to them: the floor is of black earth to a depth of 2 feet, and the substratum, from 5 to 8 feet in depth, is red, hard, compact, and peculiarly heavy.

"I found the remains of different shells, principally conch shells, in the same cave. No doubt the place had been the workshop of the Caribs, or of the people, whoever they were, who made the chisels, and this would account for the number of these instruments, and the quantity of broken shells. The specimens you have received were not scraped, and if they were clean, it must have been from frequent handling. After having

shaped the chisels, their makers evidently polished them, for some of them still shine, and have the appearance of ivory. I have found a piece of conch shell, which fits into the left hand, and appears to have been used in polishing."

The following communication was read by the author:—

Notes *on* Two Stone Circles *in* Shropshire.

By A. L. Lewis, Esq., F.C.A., M.A.I.

[With Plate I.]

Between five and six miles west of the little mining town of Minsterley, in Shropshire, there is a small circle of small stones marked on the Ordnance map as the *Hoarstone*. The largest stone is in the centre, and is 3½ feet above ground, its width and thickness being respectively 3½ and 2 feet; there are 33 stones and fragments surrounding it in a circle about 74 feet in diameter, the sizes of which vary from a cubic foot up to 5 feet by 2½, but their general dimensions are from 2 to 3 feet each way.

It is difficult to say how many stones there were originally; the usual interval is from 2½ to 5 feet, but there are gaps of 10 and 14 feet, and, as some of these are opposite to each other, they may have been intentional. The central stone leans to the south-west, and is a foot or two to the south-west of the centre of the circle, but it is just possible that it may be much overgrown, and that its base is at the true centre of the circle, for these stones are in a waste swampy piece of ground, which, although I visited it after a long term of dry weather, was very soft in places. This is rather an unusual position for a monument of the kind, but the reason it was placed there and not on one of the surrounding hills may appear presently. I could not find any outlying stones, but to the north-east is a group of three hills, the centre one of which might have answered the purpose of a gnomon.

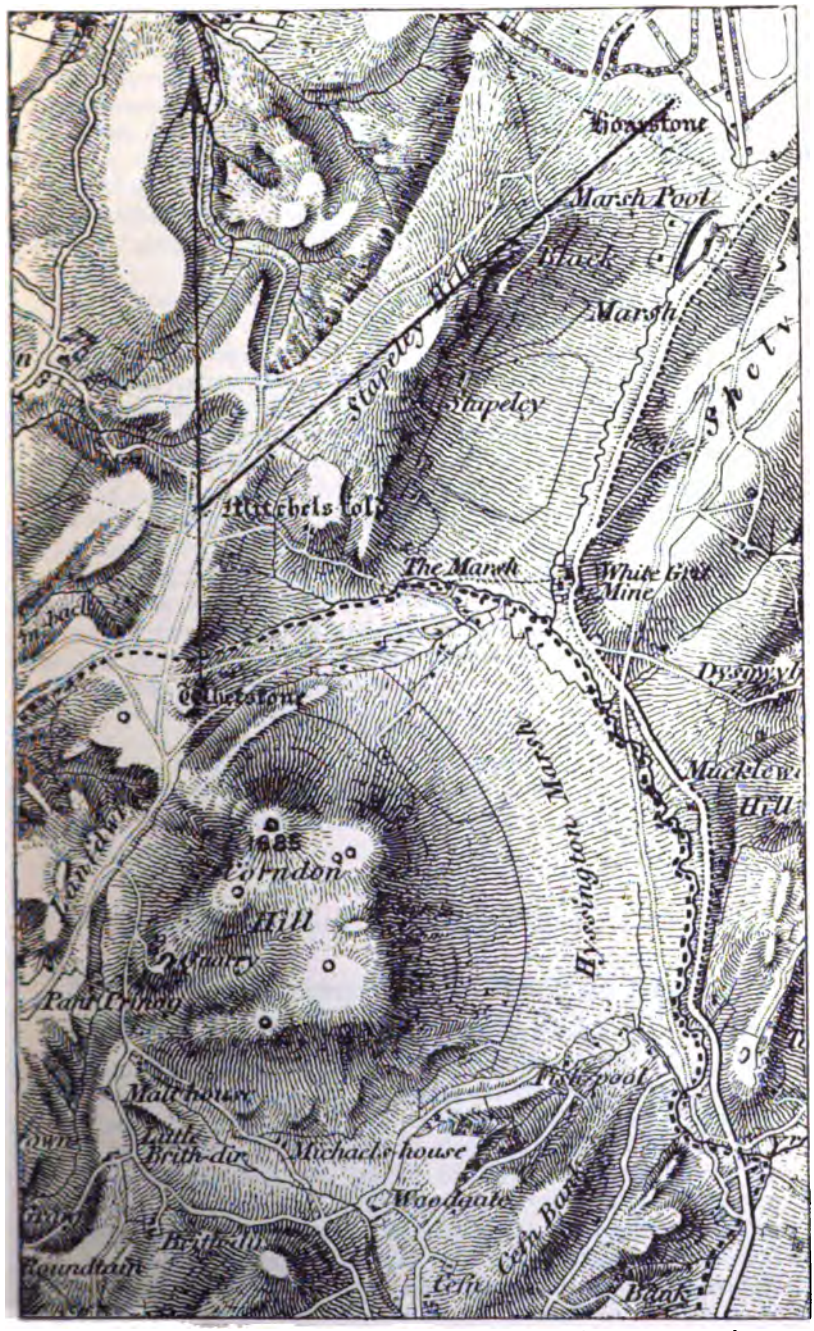
It may perhaps be thought slightly suggestive of a tradition of public ceremonies having been performed at this place that, when a wedding occurs in the neighbourhood, the miners repair to these stones, and, having drilled a hole or holes, load them with powder, and fire them instead of cannons. Accidents frequently happen on these occasions, but it is satisfactory to know that the miners suffer from them more than the stones do; the latter are, however, full of the holes made in this manner, which must not be mistaken for ancient markings or wedge holes.

About a mile and a-half in a south-westerly direction from the Hoarstone, going by the north-west side of Stapeley Hill, is another circle known as *Mitchel'sfold, Medjice's Fold*, or, as Gough's Camden's "Britannia" has it, *Madge's Pinfold.* Here 13 stones and 3 fragments stand and lie in an oval ring, the diameters of which are about 86 and 92 feet, the longest diameter running north-west and south-east, and in this respect resembling Arberlows Ring in Derbyshire; the height of the stones varies from 2½ to 6 feet, their width and thickness being from 1 to 3 feet. The original number of stones may have been from 27 to 30; since Gough's time one seems to have been lost, and another, then erect, to have fallen. About 250 feet from the south side of the circle are two stones, about 50 feet apart, the dimensions of which are about 2½ feet each way, and there is also a large fallen stone on the north-east side. In this direction also is the top of Stapeley Hill, according to the Ordnance map about five degrees east of north-east; but a very remarkable coincidence, and one which I had no idea of until, when working out my measurements, I examined the Ordnance map minutely to check my bearings, is that a prolongation of a line drawn (as in Plate I.) from the centre of Mitchel'sfold to the top of Stapeley Hill (five degrees south of north-east), would pass through the centre of the Hoarstone, the small circle first described, and that the top of Stapeley Hill would be about midway between the two, some 4,000 feet from each.

What makes this circumstance the more extraordinary is that, as our friend Mr. Flinders Petrie, whose measurements are not likely to be surpassed for accuracy, has pointed out to me, the Friar's Heel at Stonehenge is at precisely the same bearing from the circle, namely five degrees south of north-east; and not due north-east as is commonly thought. On examining other plans in my possession I find the same compass bearing possibly re-appearing at Arberlows Ring in Derbyshire, Killiney in Ireland, and Dance Maen in Cornwall, and more certainly at the Men-an-Tol in Cornwall, and at the circle at Penmaenmawr. On the other hand, though at the Rollrich and Stanton Drew there is a most unmistakable reference to the north-east, it is not at this precise bearing of 40 degrees north of east; for which reason, and also because the Ordnance map may not be correct to a quarter of a mile or so, I do not wish to attach too much importance to the extreme exactness of this coincidence.

A little over half-a-mile due south from Mitchel'sfold, a remain called the "Whetstone" is marked on the Ordnance map, but I was told that it was entirely destroyed a few years ago, when the ground about it was enclosed.

Mitchel'sfold itself stands on a sort of plateau, overlooking a



MAP SHOWING RELATIVE POSITION (N.E. AND S.W.) OF MITCHEL'SFOLD AND HOARSTONE CIRCLES, SHROPSHIRE.

valley to the north-west, but surrounded by hills on the other sides, the chief of these being the fine mass of Corndon Hill in Montgomeryshire, the top of which is as nearly as possible at the same distance as the top of Stapeley Hill, and about 22½ degrees east of south from the circle. A number of tracks meet and cross at or near the spot, and within a radius of half-a-dozen miles or so there are as many tumuli and camps, though none of the latter appear to be of any very great extent.

It will be observed that in these two circles, although there are, as in many other cases, outlying stones and possibly prominent hill tops in other directions than the north-east, there is still that paramount reference to the north-east which may be traced in most of the British circles, and from which the practice of placing churches east and west, so much more frequent in Britain and Gaul than elsewhere, is probably derived. In these circles this north-easterly reference is towards a prominent hill-top, like that of the circle on Penmaenmawr, pointed out by me in the "Journal of the Anthropological Institute" for November, 1877, and the special lesson to be derived from this circumstance is the necessity of observing the natural features of the country, and especially of noting the bearings of any prominent hill-tops surrounding monuments of this description.

Explanation of Plate I.

Map of a part of Shropshire, enlarged by a photographic process from the Ordnance map, showing the relative positions of the remains described in the foregoing paper. Scale two inches to one mile.

The following paper was then read by Miss Buckland:—

SURGERY *and* SUPERSTITION *in* NEOLITHIC TIMES.

By Miss A. W. BUCKLAND, M.A.I.

DURING a sojourn in Paris in November, 1879, I had the honour of an introduction to the late Dr. Paul Broca, whose loss is deplored by the whole scientific world. He very kindly took me over the Anthropological Museum which he had formed, in connection with the school of medicine over which he presided; and among the many interesting objects there, particularly pointed out and explained to me the curious evidences of surgical skill and the superstitions connected therewith in neolithic times, afforded by numerous trepanned

skulls in the Museum, presenting me at the same time with a copy of his pamphlet on "Prehistoric Trepanning and Cranial Amulets."

Believing that this subject will probably be as new to many of those present as it then was to me, and that it will be looked upon with double interest in consequence of the recent death of the distinguished man whose researches have made that clear and definite, which would otherwise have remained mysterious and doubtful, I venture to lay before the Anthropological Institute the facts as I have gleaned them from Dr. Broca's book and from his personal explanations.

It would appear that in 1868 M. Prunières discovered in a fine dolmen which he explored near Aiguières, a human skull, from which a large portion had been removed apparently by means of a flint saw. This hole M. Prunières looked upon as having been made in order to transform the skull into a drinking cup, according to a practice well known to have existed among semi-barbarous races; whilst a polished portion of the hole he regarded as that part to which the lips were applied in drinking. Five other fragments of skulls, partially polished, were found in the same dolmen, and these were supposed to be fragments of other skulls prepared in like manner to serve as drinking vessels. But in examining more nearly his collection of skulls from the caves or dolmens of La Lozère which he had explored, and all of which were assigned to neolithic times, he found several mutilated in the same manner, although not all to the same extent, and he became convinced that the portions removed had been cut away to serve as amulets, several of which he afterwards found, some carefully rounded, polished and bored for suspension, and others remaining rough and shapeless as when cut from the skull, whilst, singular to relate, some of these pieces were found *inside* the mutilated skulls, although evidently cut from other skulls.

Dr. Broca having been called upon to examine both the skulls and the amulets cut from them, discovered that the polished portion of the hole, which M. Prunières had at first supposed to have been the part to which the lips were applied in drinking, represented in reality an ancient cicatrised wound, healed many years before death, whilst, for some mysterious reason, most of the amulets bore traces of a portion of a similar cicatrix in some part of their circumference. Pondering upon the frequent recurrence of these curious facts, he came to the conclusion that it was the cicatrised wound which made both the skull and the amulets fashioned from it valuable, and set himself to discover the reason for this apparent veneration. His first conclusions were:—

(1.) That during the neolithic period a surgical operation was practised, which consisted of making an opening in the skull for the treatment of certain internal maladies, and that this operation was performed almost, if not quite, exclusively upon children. This he designates *trépanation chirurgicale.*

(2.) That the skulls of those individuals who survived this operation, were regarded as possessed of particular properties of a mystical order, and when such individuals died, rounds or fragments were often cut from the skull, to serve as amulets, and that these were cut by preference from the part adjoining the cicatrised opening. This latter operation he designates *trépanation posthume.*

I need not here give the arguments whereby Dr. Broca proves the correctness of his own theory, and refutes those who would assign these singular holes in the human skull to accident or disease, to a blow from a flint axe, or to the natural decay of the bone after death. On all these points Dr. Broca brings his great surgical and anatomical skill to the aid of his antiquarian researches, and proves conclusively that neither of the causes named could account for the appearances observed. Happily the posthumous mutilation was not carried out in all the trepanned skulls, and consequently Dr. Broca has been able to show from the shape and condition of the cavity the manner in which it was formed. He believes that it was not made, as in the present day, by an instrument which would cleanly cut away the desired part at once; but that the perforation was laboriously made by scraping or grating away the substance of the skull, until the end was attained. This he ascertained, by experiment upon skulls in his possession, could be effected on the skull of a child in less than five minutes, whilst on an adult skull it would take an hour; this alone he considered sufficient to prove that the neolithic trepanners operated solely upon children, although, as he justly remarks, "even the longer period of torture is not beyond the endurance either of operator or patient in Oceania at the present day, for there can be no doubt that endurance is far greater among savage than among civilized races." But the proof that this painful operation was performed during infancy or early childhood does not rest upon probability only, for Dr. Broca found among these perforated skulls one which, from its peculiarity of growth, showed conclusively that the wound had been made and healed at an early period. One circumstance in connection with this seems rather difficult to explain: it is that among all the trepanned skulls hitherto discovered there has not been one of a child found. Now as

it is certain that some, and probably a large proportion of those operated upon died from its effects, we should naturally expect to find at least a few children's skulls thus treated. Dr. Broca explains this by showing how much more readily the bones of infants decay, and how much more subject an imperfect and unhealed skull would be to natural disintegration than one perfectly sound, and shows that even in ordinary interments children's skulls are rarely met with. There seems great plausibility in this explanation: nevertheless, it would certainly be more conclusively in favour of Dr. Broca's argument to find a child's skull thus treated.

Another curious point noted by Dr. Broca is that, although these perforations are found in various parts of the skull and the posthumous mutilations are often of great extent, the forehead is always carefully exempted in both cases; this he adduces as one proof among many that these holes were not wounds received in battle; and also as showing a desire not to interfere with the personal appearance either during life or after death, lest the deceased should not be recognised in the world of spirits.

Presuming that Dr. Broca has proved the existence during neolithic times of a practice of trepanning, consisting of scraping or grating away the substance of the skull with a flint or obsidian scraper, and leaving a hole of considerable size;—that this operation was generally performed upon young children;—that those who survived the operation were looked upon with peculiar veneration, and that after death their skulls were sawn away from the cicatrised hole, in order to provide amulets of peculiar value for the living, a portion of the cicatrised hole being carefully left upon the mutilated skull, whilst an amulet cut from another skull was frequently placed within the cavity made after death:—the question naturally arises as to the reason of these singular practices.

Dr. Broca believes that this dangerous and painful operation was performed for the cure of epilepsy and convulsions, and he argues justly from the superstitious practices found in connection with it, that at that period, as well as long subsequently, these diseases were regarded as peculiarly the work of spirits, and that consequently neolithic peoples had attained to some conception of religion and of a future state. He shows that even as late as the seventeenth century, all convulsive diseases were regarded as epilepsy, especially in infancy, although true epilepsy seldom shows itself before the age of ten, and he thinks that this explains why the operation was so constantly practised upon young children, since the apparent cures effected by the process would be more numerous at that

age—experience having proved that sufferers at a later age, that is true epileptics, were not cured thereby; whilst those who in early infancy were submitted to the operation, might grow up as living witnesses of its efficacy. Dr. Broca quotes from a treatise upon epilepsy by Jehan Taxil published in 1603, not only to prove that at that date infantine convulsions were confounded with true epilepsy, but also as showing that up to that time epilepsy and kindred diseases were looked upon as spiritual diseases, the work of gods or demons, whilst the remedies recommended in this treatise are highly suggestive, consisting sometimes of the ashes of a human skull applied as a plaster on the crown of the head, sometimes the same administered in potions or pilules, and sometimes as nodules to be worn round the neck; whilst sometimes also *scraping* the skull was recommended. Dr. Broca goes on to show that all through the middle ages and even after the Renaissance the substance of the human skull was used in the treatment of epilepsy, the skulls of Egyptian mummies being regarded as the most efficacious; whilst in the last century all the pharmacies contained a bottle labelled "Ossa Wormiana," for the treatment of epilepsy, the peculiar efficacy of the triangular lambdoidian bone consisting in its form, which resembles that of the amulets cut from the human skull; thus showing the step between prophylactic and mystic medicine.

Neither was the use of trepanning as a remedy for convulsive disorders confined to neolithic times: it is still in favour with Oceanic races, with the Kabyles, and also, it is said, with the mountaineers of Montenegro. Even in the last century a certain number of practitioners employed trepanning as a cure for epilepsy, and Taxil, before quoted, writing in 1603, gives minute directions for the process, which in epileptic cases differed from that employed in cases of fracture of the skull, that being its sole use in the present day, especially when that fracture is likely to produce epileptic convulsions, all modern practitioners regarding it as useless in the case of spontaneous epilepsy. "But," says Dr. Broca, "how came it introduced into the practice of medicine? No one knows; Hippocrates, Galen, and other ancient authors, the Arabs and the Arabists had not spoken of it; it was doubtless one of those popular practices which low empirics transmitted from one to another, and which sometimes got introduced into therapeutics." M. Prunières supposed that this practice of trepanning was extended to idiots and insane, as well as to convulsive patients, and this Dr. Broca considers possible, although he believes its chief use was for infants suffering from convulsions, who were consequently supposed to be possessed by spirits. Among the skulls

examined by Dr. Broca is one particularly noteworthy, because from the appearance it presents it would seem to have been *partially* trepanned; a large surface appears to have been scraped away, but the operation was not finished, or at least it was not continued so as to produce the usual hole.

Dr. Broca thinks several similar cases may be found of this incomplete trepanning, of which he possessed three specimens, one from Roknia, Algiers, and two others. This he supposes to have been either a lesser operation for a minor malady, or more probably that it was adopted by some unbelieving or less credulous individuals, who attributed the cure rather to the scraping of the substance of the skull, than to the hole made to facilitate the escape of the evil spirit of disease, but at the same time he sees in this incomplete operation a sign of the decay of an old superstition, and points out that in the comparatively late treatise of Taxil upon epilepsy, he recommends a treatment which consists of scraping the whole external table of the bone, but which was sometimes to be continued so as to expose the dura-mater. Hence he says, "The empiric operators of the middle ages, whose barbarous practices are reflected in Taxil's book, did precisely that which had been done many centuries before by neolithic operators, with this difference, that with the former incomplete trepanning was the rule and complete the exception, whilst with the latter it was just the reverse, the complete operation being the rule and incomplete the exception."

I have before mentioned the amulets cut from the trepanned skulls, some of which were found inside the skulls thus treated, although these invariably belonged to other skulls, and not to that within which they were found. These amulets are of various forms and sizes. A glance at the mutilated skull figured in Dr. Broca's book will show how they have been cut away from the hole made in trepanning, and how much they must have differed in shape. Some of those found are carefully rounded and polished, and have a hole bored in the centre for suspension; some are triangular, some oblong, and some quite unpolished, just in the state in which they were cut from the skull; but in almost all there is a portion to be detected of the original cicatrised hole, and it is probably to this that they owed their value. Dr. Broca thinks they were probably worn as a charm against those convulsive disorders for which trepanning was practised, and that so great was their reputation that they became articles of commerce, so that it was necessary to preserve some visible token of their origin, in order to prove that they were really taken from a trepanned skull. This however will not explain their presence within the

skull from which others had been cut. Dr. Broca supposes that having gone as far as possible in robbing the deceased of his cranial substance, fear of his anger in a future state induced them to make some sort of restitution, by placing within the despoiled skull a valued amulet cut from another sufferer. I cannot say that this hypothesis is quite satisfactory, and I may perhaps be allowed to offer another, which has suggested itself to me as probable. It would appear to me that the permanent hole in the skull, whether of child or adult, would necessitate some sort of shield for the exposed portion of the brain, the least injury to which would be fatal; and what more appropriate covering could be found than a portion of the skull of one who had suffered in like manner, and had lived and grown old notwithstanding, and to whose skull therefore a specially preservative power might be assigned by superstition? One might imagine a mother hastening to provide her suffering child with this preservative shield, either polished or unpolished according to her means, which worn by him in a fillet bound round the head during life, would, as well as other precious possessions, be buried with him. But when, perhaps, after a lapse of years the skull of the trepanned was again mutilated to provide amulets or coverings for the living, this amulet would be displaced, and of course, being found too small for covering the enlarged cavity, it would naturally be placed inside, perhaps with the vague notion that the departed spirit finding the accustomed covering, would not miss the pieces taken from the skull, or would suppose the loss to be the result of accident or natural decay; for it is not without significance we read that the skulls wherein the amulets have been found, and which are always posthumously mutilated, are filled up with earth so tightly packed into the cavity as to require some patience to remove it. One point in favour of this hypothesis is that two out of the three amulets hitherto found in the interior of mutilated skulls, have been of the rare type styled *rondelles* by Dr. Broca, that is they are nearly round, highly polished and neatly fashioned at the edge; the third being also rounded and polished, although of a more irregular shape, having likewise been broken; whilst the ordinary cranial amulets are irregular in form, and generally left in the state in which they were cut from the skull. We must also bear in mind that we are treating of a time when metal was unknown, so that if a shield was required for the exposed brain, some hard substance such as stone, shell, or bone must have been chosen, and this would add to the probability of cranial amulets having been so applied. This however would account for very few, three only having hitherto been found within the cavity of trepanned

skulls, so that by far the larger number were doubtless used and worn as charms, probably to ward off or cure convulsive disorders.

Those who have followed this singular account of prehistoric surgery thus far, will naturally inquire whether the custom can be traced to its origin, and whether it was peculiar to one tribe, and to one period. To both these questions Dr. Broca gives an answer, although necessarily an incomplete answer. He says that these pre-historic trepannings were in use through the whole of the neolithic age, for they have been found in the cavern of the "Homme Mort" (Lozère), which dates from the commencement of the polished stone period, also in the sepulchral grottoes of Baye, which date probably from the latter part of that epoch, and again in certain dolmens of Lozère in which a few rare objects in bronze testify to the end of the neolithic period. Traces of the practice have also been found on skulls partially cremated, and if it could be clearly demonstrated that cremation was never used in neolithic times, this would prove that trepannings extended into the age of bronze, but in the sepulchres from which these skulls were taken, no trace of metal was found, and the two modes of interment by inhumation and cremation were found to exist side by side. On the other hand, one of these perforated skulls was discovered by M. Gassies at Entre-roches near Angoulême, among relics which he assigned to the palæolithic period, but Dr. Broca shows that from pottery and a polished hatchet having been found in the same sepulchre, as also bones of animals all belonging to existing species, this interment was certainly neolithic, and he does not think trepanning can be traced to an earlier epoch than the neolithic. As regards its area and origin, he says the custom obtained in a large part of France, from the artificial grottoes of the department of Marne on the north, to the natural grotto of Sordes (Basses-Pyrénées) on the south; the extreme stations to the south-east being those of Lozère discovered by Prunières. Similar discoveries have been made by various archæologists in the department of Charente on the west, in the great dolmen of Bougon (Deux Sevres), and in two sepulchres near Moret (Seine-et-Oise). "Pre-historic trepanning therefore," says Dr. Broca, "was not a local practice confined to a single tribe; it occupied an extensive area among peoples who without doubt were numerous and distinct, but who were certainly bound together by strict social and religious ties, and by a common civilisation. Whence came this curious practice? If we judged according to the frequency of the facts, we should be disposed to believe that it originated in the region which now forms the department of Lozère, since it is there that the greater number

of specimens have been found. But this result is probably due to the indefatigable activity, and the rare aptitude of M. Prunières, whose sagacious eye allows no detail to escape. It is not yet three years (1879) since the first discussion in the Anthropological Society of Paris drew the attention of French pre-historians to the subject; it is only since then that other neolithic stations have been studied with this especial object, and the already numerous facts gathered will doubtless soon be multiplied. It is no less probable that similar facts will soon show themselves beyond the geographical area indicated. I am not of the number of those who attribute to one people all the megalithic monuments, and all neolithic civilisation; but it appears to me indisputable that this civilisation has been spread most frequently by means of migration, and the determination of the places to which the practice of trepanning has been extended may throw much light on the direction of these migrations."

"If the incomplete trepannings were as well known and as clearly demonstrated as the perfected, if in other words their witness was as decisive, the skull of Roknia described above would lead us to believe that the therapeutic surgery of the neolithic epoch had been imported into northern Africa by the constructors of the dolmens of that region; perhaps we see there the origin of these trepannings, which have been in use from a very remote period among the Kabyles, and of which M. le Baron Larry has spoken before the Medical Academy of Paris. But a fact at present unique is not sufficient to establish such a conclusion."[1]

I wish to draw your attention particularly to these words of Dr. Broca, because it is chiefly in regard to them that I have brought this subject before you.

There can be no doubt that neolithic monuments similar to those wherein these trepanned skulls have been found in France exist in great numbers in our own country, and more especially in Ireland, Wales, and Cornwall, but as far as I am aware no record of a skull thus treated in Great Britain or in Ireland has hitherto been noted by our archæologists. It is true that since my attention was called to the subject by Dr. Broca, I have had but little opportunity of minutely examining such books as would be likely to give full details, but I find no mention of the subject in the "Crania Britannica," and other well known archæological works, which however were published prior to these discoveries in France. Are we then to conclude that the practice of trepanning never extended to our shores, or that the connection which doubtless existed during neolithic times between Great

[1] "Sur la Trepanation du Crane et les Amulettes Crainiennes à l'époque Néolithique." Par M. Paul Broca, 1877, pp. 69, 70.

Britain and France, had been severed before the adoption of trepanning in the latter country? I think not, and feel sure that a minute examination of many of the apparently broken skulls found in the sepulchral caves and dolmens of the neolithic period will reveal the fact that the custom extended to our shores. I need not point out that every additional ascertained fact is important in anthropological research; but in this case it is doubly so, as bearing not only upon the surgical practices of identical or allied races, but also upon their religious beliefs. There can be no doubt that the hole bored in the human skull had its origin in the belief in spiritual possession, formerly so universal in the case of epilepsy and other convulsive disorders. "The intervention of a supernatural agent," says Dr. Broca, "appeared still more evident because certain individuals displayed in their convulsive movements a strength quite beyond their ordinary strength. Nothing but a spirit imprisoned in the body could produce such effects; he is agitated and angry in his prison; if a door could be opened for him he would escape, and the sick would be healed. This probably gave birth to the idea of pre-historic trepanning."[1]

This of course pre-supposes a belief in spirits beings supernatural and intangible, yet requiring visible means of egress and ingress. It may be regarded as almost certain that the holes found in the stones forming the entrance to dolmens in India as well as in our own country have their origin in this belief, and the custom which has hardly yet died out of passing children through such holes for the cure of certain diseases, appears to bear some analogy to the practice of trepanning, although whether the custom of trepanning originated in the holed stone, or whether the hole in the stone made for the passage of the spirit was taken from the surgical operation, is yet to be ascertained. I fancied I observed a survival of this curious custom of trepanning during my recent sojourn in the south of France. At Cannes I saw several dogs with oblong patches of red leather stuck on their heads, and on inquiring of a man who had one of these dogs the meaning of this curious adornment, he replied, "You see, Madame, all young dogs are subject to fits, and it is supposed that this piece of leather worn just on the brain will prevent these attacks." "And does it really have that effect?" I asked, desirous of finding out how far the idea extended. "Ah, Madame," was the answer, with the inimitable French shrug of the shoulders, "how can *I* say, I am not a patron of dogs, but *they say so.*" I observed also in Milan that almost every dog wore under the compulsory muzzle on the top of the head a little

[1] "Sur la Trepanation du Crane et les Amulettes Craniennes à l'époque Néolithique." Par M. Paul Broca, 1877, pp. 69, 70.

ornamental patch of cloth or leather, generally red, but whether with the same idea of warding off madness or fits I could not ascertain.

Dr. Broca has told us that even to the present day the shepherds of Lozère trepan giddy sheep, by taking the head of the sheep between their knees, applying the point of their large knife to the skull, and turning it between the hands until a hole is made, and he thinks this might have been done by a flint knife in neolithic times, although this process would not make a similar perforation to that in the trepanned skulls; but the people of some of the South Sea Islands, who still practice trepanning, perform the operation by scraping with a piece of glass, which—substituting flint for the glass—Dr. Broca thinks to have been the process in neolithic times, since he found by experiment that he could by that instrument, used as a scraper, make just the elliptic opening found upon the neolithic skulls. "The Kabyles of Algeria," says Dr. Broca, "who often practice trepanning, use saws, by the aid of which they circumscribe the piece to be removed." Mr. Squier discovered in an ancient Peruvian tomb a skull which had been trepanned by means of four sections cut at right angles, so as to take away a square piece. The Greek surgeons opened the skull by means of a turning instrument called the *trepan*, but this, as Dr. Broca points out, could only have been after the discovery of metals, and yet the origin of the operation had been forgotten in the time of Hippocrates, in the fifth century before our era.

With regard to cranial amulets, Dr. Broca says that although those of which he has spoken are all of the neolithic period, yet there are traces of their use long after that time. "There is one in the Collection Morel at Chalons-sur-Marne, suspended from a Gallic torque by a hole in the centre. A similar amulet pierced with holes was found by M. de Baye, also in the Department of Marne, and he possesses several others, which although not suspended to torques, were in all probability made to be hung round the neck like medals, and we may believe that this Gallic custom had descended from neolithic times, although perhaps the Gauls did not attach to them the same ideas as their predecessors; and that which had originally been an amulet, might in time have become simply an ornament, for we know how persistently certain popular customs become perpetuated under their material sign, even when the original design of the custom is lost."[1]

It will thus be seen that both the custom of trepanning, and the use of cranial amulets, extend not only over a very large

[1] "Les Trepanations Préhistoriques." Broca, p. 6.

area, including as it would appear the Pacific Islands and Peru, as well as Africa and France, but also occupied a very considerable space of *time*, since we have traced both customs either in full operation, or in a state of survival, from neolithic times to the seventeenth century, and even to the present day among the Kabyles and inhabitants of Polynesia. Nevertheless there are some very curious points in connection with these customs as revealed to us by Dr. Broca, which require to be cleared up. In the first place all the trepanned skulls hitherto discovered, belong, as Dr. Broca believes, to the neolithic period, extending from the beginning to the end of that period, when they suddenly cease, and yet the belief in the efficacy of the operation in epileptic and convulsive disorders continued even to the seventeenth century, as is witnessed by the quotation from Taxil's treatise on epilepsy, wherein he recommends the treatment of epilepsy to consist "of the application of a cautery or issue obtained by exposing the bone by grating and taking away the outer portion, *as they do generally*."[1]

Dr. Broca attributes the sudden cessation of trepanning to a change of religion at the commencement of the bronze age; he says: "The adoption of a new mode of sepulture necessarily implies a great change in religious ideas. But it is quite to be understood that a people is not converted at once and entirely to new beliefs, and that superstitions would survive during some time. The practice of trepanning, therefore, may well in certain places have survived the neolithic epoch for a short time, without our being justified in attributing it to the bronze age, and everything leads to the belief that it became extinct at the same time as neolithic civilisation."[2]

Dr. Broca has, however, himself shown that there has been no such great change in religious belief in regard to trepanning, for he has pointed out that in all ages epilepsy and convulsive disorders have been attributed to spirits and demons, and that trepanning was resorted to as a cure for these disorders as late as the seventeenth century, whilst exorcism to drive out the evil spirit, and that sort of survival which consisted in passing children through a holed stone for the cure of these disorders, may be traced even to the present day. Therefore that the custom of trepanning should suddenly cease with neolithic times is strange *if proved*. The practice of cremation, which became almost universal in the bronze age, may have destroyed in a great measure the necessary proofs, although Dr. Broca relates that among numerous fragments partially cremated, discovered by M. Chouquet, two bore traces of surgical and posthumous

[1] "Les Trepanations Préhistoriques," Broca, p. 34.
[2] *Ibid*, p. 72.

trepanning, but from the absence of metal he puts this instance of cremation down to neolithic times. My own impression is, that the custom once introduced was continued both by tradition and practice to a late epoch, although perhaps it became less and less frequent, as superstition gradually died out among the better educated, and surgery became confined to an educated class, instead of being the privilege of witch doctors or medicine men, which was doubtless the case in neolithic times, as it still is in uncivilised countries.

Another singular circumstance with reference to these pre-historic trepannings is, that some of the skulls have been left entire, whilst others have been largely mutilated to provide cranial amulets. Dr. Broca thinks that the exemption from mutilation was due to the opposition of the survivors, but I would suggest whether it might not rather be that the unmutilated had not been cured, and that therefore their skulls were not regarded with the same veneration, or perhaps the posthumous mutilations may have taken place at a later date, in consequence of a new superstition, and the unmutilated may have remained undiscovered.

At all events I hope I may have said enough on this, to me, interesting subject, to draw the attention of some of our anthropological students to it, that they may be induced to examine minutely such skulls or portions of skulls as may fall in their way, for traces of the existence of this curious custom in Great Britain in neolithic or later times, for I cannot believe that the practice could have been confined to France, whilst the superstition with which it is so obviously connected certainly reached our shores with that neolithic civilisation of which it is a part; being as I believe still to be traced in the holed stone called Men-an-Tol in Cornwall, and in many other holed stones forming the entrance to dolmens, several of which exist certainly in Wales, and it is particularly in connection with these that I should expect to find traces of pre-historic trepanning, either in mutilated skulls or cranial amulets.[1]

Among the relics of the Swiss Lake dwellers, Keller describes a tomb at Auvernier having a large slab of gneiss, in which is an opening more or less square, made apparently intentionally, sufficiently large for a human body to be carried through, and among the relics within this tomb "a little bone $1\frac{1}{8}$ inches in diameter, carefully polished on both sides, and perforated in the centre."[2] This was probably a cranial amulet, and if so it would

[1] Dr. Broca mentions holed skulls, and coffins also with holes in them, found in Michigan, but these are evidently posthumous, and he does not think they have any affiliation with the neolithic trepanned skulls, although showing a similar stage of religious belief.

[2] Keller's "Lake Dwellings," vol. i, p. 251.

be extremely interesting as showing the extension of similar practices and religious beliefs to the Lake dwellers. Many such relics might, I believe, be found among the neolithic tombs of Great Britain and Ireland, and the great light which would thus be thrown, not only upon the habits and customs, but also upon the superstitions, the belief in spirits and in a future state, by these mute records of an age and people long passed away, renders the search for them peculiarly interesting. In addition to this the ethnological value of these things must not be overlooked. It seems barely possible that the Kabyles of Africa, the natives of the South Sea Islands, and the neolithic people of France, would have hit upon this peculiar custom of trepanning, and have carried it out in the same manner, and for the same cause, unless the custom acquired in one spot had been conveyed from that one spot to others, either as Dr. Broca says by means of migration, or by some mode of intercommunication at present unknown to us.

I trust, therefore, that ere long our ethnological and anthropological museums may be furnished with examples of this curious custom taken from the dolmens of Great Britain; and in order that searchers may know how to distinguish these remarkable trepannings from other injuries, either during life or after death, I would refer them to the plates and explanations in Dr. Broca's book on "Prehistoric Trepanning and Cranial Amulets," from which I have so largely quoted.

Discussion.

Mr. Rudler, having had an opportunity, in company with Mr. Brabrook, and under the courteous guidance of Dr. Broca and Dr. Topinard, of examining the prehistoric trepanned skulls in the Museum of the Anthropological Society of Paris, bore testimony to the great interest of the subject introduced to the notice of English anthropologists by Miss Buckland. At the same time he called attention to several discoveries of perforated skulls, which had been submitted to the Anthropological Society of Berlin. The connection which was sought to be established between the perforations in the skulls and the holes in the walls of certain dolmens had been extended to those perforated sepulchral urns which are well known to German archæologists. In all these cases it had been assumed that the opening was intentionally made as a means of egress for the spirit. The notion that an aperture is needed for the free passage of a ghost still lingers in the wide-spread practice among superstitious people in this country, not less than on the Continent, of opening the window of the sick chamber immediately after a death. It must be remembered, however, that some of the instances of skull perforation cited in the paper were of an entirely different character. Thus the practice of piercing the skull of a sheep

suffering from staggers, as stated to be still practised in Lozère, rests upon a more rational basis, inasmuch as the operation, rudely performed by the shepherd, may occasionally effect a cure by the actual removal of the cystic worm (*Coenurus cerebralis*) which occasioned the cerebral disturbance.

Some remarks were also made by Lieut-Colonel GODWIN-AUSTEN, Mr. G. M. ATKINSON, and the PRESIDENT.

NOTES *on the* ORIGIN *of the* MALAGASY.

By C. STANILAND WAKE, Esq., M.A.I.

[A paper read before the Institute on November 23, 1880.]

SOME years ago I read before the Anthropological Society of London, a paper on the "Race Affinities of the Madecasses," or Malagasy, in which I traced the numerous points of agreement between the inhabitants of Madagascar and the natives of South Africa. The conclusion I then arrived at, was that the Malagasy are "more truly autochthonous than any other existing race, except perhaps the aborigines of Australia." This view is an intermediary one between that which would trace the former people to an African origin, and that which would connect them closely with the native inhabitants of the Pacific Islands. Since the publication of the paper referred to, I have somewhat changed my opinion as to the origin of the Malagasy. Many as are the features in which they agree with various African peoples, they may be due either to intercourse between the inhabitants of Madagascar and those of the adjacent continent or to derivation from a common source. That the Malagasy had at one time much closer relations with the natives of the East Coast of Africa than at present cannot well be doubted. I would rather, however, explain the points of agreement presented by those races as being due to the intercourse which they have had in common with the Hamitic or Semitic peoples of South-Western Asia. The great influence exercised by these peoples over the African races is now generally admitted, and it is becoming recognized that they have left strong marks of their influence in the island of Madagascar.

A writer in the "Antananariv Annual" (No. 2, 1876), the Rev. L. Dahle, refers to the traditional arrival on the south-east coast of this island, in the eighth century, of Arabian or Persian settlers, to which he traces the history of the origin of the Antaimours and Zafiraminis, the descendants of the mother of the Arabian Prophet, in the same part of Madagascar. It has long been known that the Hova names of the days of the week

and names of the lunar months, were derived from the Arabic, and it has recently been shown, not only that the latter are the Arabic names of the constellations of the Zodiac, but that the days of the Malagasy month were originally the Arabic names of the twenty-eight moon stations. Mr. Dahle supposes that the descendants and proselytes of the Arab settlers on the south-east coast carried into the interior the names of the constellations, which, to enable them to teach the natives the system of divination founded on the idea of lucky and unlucky days, they transferred to the lunar months. Not only does he trace the Malagasy notion of *vintana*, or destiny as depending on time, to this source, but also the practice of divination, or counter-charming, by the *sikidy*. Moreover, Mr. Dahle affirms, also on the evidence of language, that the Arabs have introduced to the Malagasy the use of dress (although not many of the different kind of clothes), and the knowledge of money; have given them the names of most of their musical instruments, their words referring to books and writings, and the terms of salutation, besides many other words. Whether Mr. Dahle's opinion as to the extent of "the Arabic contribution to Malagasy civilisation and superstition" will be fully accepted is perhaps doubtful, but his general conclusion cannot be denied. A reference to certain Malagasy customs will sufficiently prove its truth.

Thus, the offering of human sacrifices was formerly prevalent on the south-east coast, the position where Arabian immigrants are supposed to have landed, and the sacrifice of persons of high rank was thought by the Malagasy of that region to be the most appropriate offering to their divinities, as we know was the case also with various Semitic peoples.

The practice of *faditra*, or the use of expiatory offerings to avert evil, reminds us of the scape-goat, which had almost its counterpart in the sheep on which the evils to be removed were imprecated by the Malagasy priest.

The *tangena* ordeal closely resembled the ordeal by bitter water mentioned in the Hebrew Scriptures. The superstitious use of large stones, and the anointing of them with sacrificial blood and fat, is probably due to Arabian influence.

The custom of building towns on the tops of hills prevalent in central Madagascar is not specially Semitic, but the use of large circular stones for the purpose of closing the entrance to their house enclosures, formerly customary among the Hovas, was probably thus derived. The rite of circumcision, which the Malagasy look upon as of great importance, cannot well be traced to any other but an Arab source, especially if it is a remnant of human sacrifice, unless it was practised by the

peoples of South-Eastern Asia before the establishment of Buddhism, of which we have no evidence.

I would not by any means affirm, however, that the Malagasy as a race are sprung from the Arab or other Semitic stock. Whatever the influence exercised over them by that people or their allies, their closest affinity is with a race which although Asiatic is very different from the Arabs. In my former paper on the race affinities of the Malagasy, I referred to various points in which the Malagasy agree closely with the Siamese. It is to the region inhabited by this and cognate peoples, I would refer the origin of the Malagasy, and I will now proceed to show more fully than has hitherto been done some of the grounds on which such an affinity must be established.

The semi-divine character and absolute authority of the Malagasy Sovereign, and his position as the theoretical owner of the whole soil of the country, and as entitled to the property and service of his people, can be perfectly paralleled among the Siamese. Thus, the authority of the Siamese monarch is quite absolute, the reverence paid to him is such as is accorded to a divinity, and he is master, says Bowring, "not only of the persons, but really of the property of his subjects—he disposes of their labour and directs their movements at will." The reverence for authority among the Siamese has influenced language so greatly as to create different vocabularies for use in the several grades of society; in the same way as the objection to the use in common discourse of words and particles occurring in the names of chiefs has led to considerable variation in the different dialects of Madagascar. The ceremonies on the coronation of the Sovereign have the same general character in Madagascar and Siam. The first act of the Siamese Sovereign after he enters the hall of ceremony is to perform an act of homage to the Idol of Victory, and until the establishment of Christianity one of the earliest acts of the Hova Sovereign at the coronation was to perform a similar act before the two native idols. After the coronation ceremony, the King of Siam gives audience to his nobles and ministers, who offer to his Majesty everything they possess, and all the treasures of the kingdom; and so among the Malagasy the *hasina*, or money offered as a mark of allegiance, is presented by the different tribes and representatives of the people. The Malagasy oath of allegiance, which consists in drinking water which has acquired a special virtue from contact with certain weapons of warfare, so closely resembles that in use among the Siamese, that the one must have been taken from the other, unless they have been derived from a common source. On the death of the Sovereign of Madagascar all the people shave the head, and the

same custom is universal as a sign of mourning among the Siamese. In both countries there is a superstitious objection to the shedding of the blood of persons of rank, and hence when such persons are put to death, it is by strangulation, suffocation, or beating to death. Among the marks of dignity which in the East distinguish the Sovereign, the use of the umbrella is probably the most widespread. The umbrella surmounting the topes which contain the relics of Gautama Buddha, is represented by the seven-storied yellow or golden umbrella which is the chief symbol of Sovereignty in Siam. And in Madagascar also, the umbrella, distinguished by its scarlet colour, is the mark of royalty.

Notwithstanding their reception of Buddhism, the Siamese have retained many traces of the primitive phase of superstition which answers to the Malagasy belief in elemental spirits. Among both peoples the fumes of incense are considered an acceptable offering to the spirits whom they seek to propitiate. We have seen that in Madagascar human sacrifices were formerly offered, and such sacrifices were customary on the setting up of the corner post of a new palace, a practice similar to that at one time in use among the Siamese, if it be true, as stated by ancient writers, that when they erected a new gateway, a human being was immolated. The superstitious ideas entertained in common by the Malagasy and Siamese include the belief in lucky and unlucky days, the dislike to even numbers, the use of the ordeal by drinking medicinal water, and the practice of divination. Whether or not, the *sikidy* was, as Mr. Dahle supposes, derived by the Malagasy from the Arabs, it is probably connected with the knowledge of the hidden properties of numbers which the Siamese bonzes think it is a sin not to be acquainted with. The Malagasy have a curious custom connected with childbirth which it is difficult to explain except as the relic of an old superstition. Shortly before that period a wood fire is kindled and kept burning until a considerable degree of heat is obtained, and on the birth of the child the friends of the parents send pieces of money intimating that it is to buy wood-fuel. A similar custom has been observed among the Siamese and Burmese, with whom the mother is exposed for several weeks to a burning heat, death being often caused by the exposure. Bowring supposes this exposure to heat to be connected with the idea of purification, but from its resemblance to the Maori practice of driving away the demon from a sick person by heat, it had probably a similar origin. Another significant ceremony connected with childhood is the first cutting of the hair. This is an important and festive event among the Malagasy, and such is the case also

with the Siamese, among whom education begins only after shaving the head. According to Bowring, the removal of the tuft of a young prince is a most important ceremony, and appears intended to mark the entrance into the rights of manhood.

The idea of purification is apparent in the ceremony of bathing, which gives the title to the Malagasy New Year's Festival. It is not improbable that this ceremony, with the lighting of fires which precedes it, may have been derived from the Semitic source to which various other Malagasy customs may be traced. The habit of bathing is, however, much indulged in by the Siamese, and lustral water is used not only in their coronation ceremonies, but also sometimes for sprinkling over the sick when at the point of death. According to Sangerman, the Burmese, indeed both men and women, divert themselves at the commencement of the new year by throwing water at each other, until everybody is wet from head to foot. The funeral rites of some of the Malagasy tribes closely resemble the ceremonies performed among the Siamese. On death the latter burn instead of burying the bodies of the dead, but the accompaniments are often the same in both cases. The most remarkable is the practice, observed by both the Betsileo and the Sakalava tribes, of drawing off the putrefying liquor from the corpse, as is customary among the Siamese. The funeral monuments erected by the Betsileo, which differ from those of most of the other Malagasy tribes, have, judging from the description of them given by Mr. Richardson, a curious resemblance in form to the memorial arches erected by the Chinese, which have doubtless had a Buddhist origin. They consist of high wooden posts connected at the top by a transverse rail, which is supported by other upright posts.

Among other superstitious ideas entertained by the Malagasy are many connected with oxen. These animals are killed at funerals, their skulls being often suspended on poles near the tombs, and a small silver figure of a buffalo is sometimes worn as a charm. Bull fighting was in Madagascar, as in the Indo-Chinese peninsula, a favourite amusement, and the fighting bulls of the Malagasy sovereign were embalmed. The Malagasy are said not to have eaten beef until its excellence was discovered by an ancient king Ralambo, to whom the origin of the New Year's Festival is also ascribed. From this statement we might judge that the custom was derived from the Semitic people whom we have supposed to have affected the form of the Malagasy festival. The Siamese, however, like all other Buddhist peoples, generally have great objection to eating animal food, and the killing of tame oxen is forbidden among them. Bowring speaks of this as a Brahminical prejudice, and the fact of the Malagasy

having the humped ox or Zebu of India, although this animal is domesticated in China, may perhaps be taken as evidence that the people of Madagascar obtained their former prejudice against eating the flesh of the ox from a Hindoo source. Further evidence of such a connection between the natives of Madagascar and those of India may perhaps be found in the discovery on the east coast of that island of the figure of an elephant made of soap stone, and hollowed out for the reception of offerings, which is traditionally said to have been brought from Imàka (Mecca ?) by Ramania, an uncle of Mohammed. The name Ramania takes us to India, however, rather than to Arabia; but the statue may have been of Siamese or Burmese origin, the veneration of these people for the white elephant amounting almost to worship. Another point of contact with India is the Betsileo custom of wrestling with the oxen which they sacrifice at their funerals, and throwing them down before they are killed. This practice is met with among the Todas of South India, who treat the buffalos to be slain at the grave with great violence, grappling them by the horns and beating them with clubs furiously, until they are not able to move. The Todas look upon the buffalo as almost sacred, certain men being specially set apart to milk the cows, and in some parts of Madagascar the killing of an ox was formerly, if it is not still, the duty of the chiefs.

The use by the Malagasy in iron-working of a peculiar form of bellows is generally referred to as proof of their relationship to the Malays. This bellows is, however, only a modification of the common Chinese piston bellows described by M. Breton, and a bellows of the same kind is, as Colonel Yule informs us, used by the inhabitants of the Indo-Chinese peninsula, from whom the Malays have probably derived it. The same may be said of the art of iron-smelting, which we can hardly doubt has had its origin on the Asiatic continent. Sir Stamford Raffles, who refers to the use of the Malay bellows, says the iron smiths of Java are distinguished by the term *pandi*, a name which is doubtless of Sanskrit origin, and the art of iron-smelting may have been introduced into the Indian Archipelago by the Hindoos, to whom the Javanese have been largely indebted for their civilisation. The same origin may perhaps be ascribed to the filagree and other work in the precious metals, in which the Malagasy excel, and also to certain articles, such as umbrellas and palanquins, which they would seem to have been acquainted with before the appearance of Europeans.

The most important point of contact, however, between the Malagasy and the Siamese is to be found in certain features of their architecture, and it is a point which deserves a fuller

examination than can be given to it in this paper. The Rev. James Sibree in his later work on Madagascar, after describing the mode of construction of the Hova houses and referring to the high pitch of the roofs, mentions that "at each gable the outermost timbers cross at the apex, and project upwards for often a foot or two, the extremities being notched and often ornamented with a small wooden figure of a bird." He adds that "in the houses of people of rank the *tandro-trano* or 'house horns' are 3 or 4 feet long, while in some of the old royal houses they are 10 or 12 feet, the length being apparently some indication of the rank of the owner. In some tribes these gable ornaments, which have become only conventional horns among the Hovas, are carved in exact resemblance of the pair adorning the head of a bullock." This probably has been their original form, as among the Betsileo iron horns are used as cresting for the massive upright monoliths raised above tombs. The high-pitched roof and cross gables are essentially Asiatic, and can be traced through Asia to Northern Europe. The carving of the gables into the shape of horns or other objects is also there found, having probably the same origin as among the Malagasy.

In the Indo-Chinese countries the crossed gables do not appear to be thus carved, but the curious horns which project from the double gables of high pitched Siamese roofs have evidently the same meaning. The Sumatran house, a representation of which is given in Mr. Wallace's "Malay Archipelago," bears great resemblance in its high-pitched roof and pointed gables to the houses figured by Bowring, but it does not approach so nearly in the character of its gable-horns to the Malagasy buildings as do the houses of Siam. It is remarkable that a large house observed by Captain Cook on the island of Savu, near Java, which was distinguished from the others by having two pieces of wood resembling cow's-horns at each end of the roof-ridge, was said to have been erected by the Dutch.

The conclusion I would adduce from the facts above referred to is that the origin of the Malagasy, if they are not autochthonous, must be traced to South-Eastern Asia. This conclusion is quite consistent with the existence of the many admitted points of contact between them and the Polynesian Islanders. Some of these customs have recently been mentioned by Mr. Sibree as proving that the Malagasy cannot have had an African origin, and that they are closely allied to the so-called Malayo-Polynesian race. The customs referred to by Mr. Sibree are the non-use of skins and the use of woven and beaten-out vegetable fibres for clothing; the ancient knowledge of iron-smelting; the use of the Malay form of bellows, and the

practice of the brotherhood-by-blood custom; to which is added the special affinity which the Malagasy language has to the languages classed together as Malayo-Polynesian. With reference to these points, it may be observed that the practice of iron-smelting is probably more ancient on the African continent than in Madagascar, seeing that, according to a tradition mentioned by Dr. Mullens, it appears not to have been known to the Malagasy before the appearance of the Hovas, whose ancestors we shall see reason to identify with the strangers who landed on the island about the eighth century of our era. Moreover, not only is the brotherhood-by-blood custom known on the African continent, but also the use of cloth made of vegetable fibre. Du Chaillu mentions that the Ishogo of the Gaboon and neighbouring tribes weave together the fibres of young palm leaves, the "grass-cloth," which is thus made, evidently being much the same as that produced by the Malagasy from the "long grass-like leaves of the rofia palm." The Malay form of bellows appears not to be in use on the African continent,[1] but on the other hand it is not known to the islanders of the Pacific, who when discovered by Europeans were quite ignorant, if not of iron, yet of the art of working it. This fact, and the absence of the brotherhood-by-blood custom, would seem to prove that, whatever the relationship between the Malagasy and the natives of Polynesia, they cannot have been in actual contact. The manufacture of cloth from fibre is probably a common inheritance, but as it is known to certain African tribes it cannot be evidence of any special relationship between the islanders of the Pacific and the Malagasy. The nature of the affinity between the languages of these peoples is consistent with the idea that, while certain customs have been derived by them from a common source if not from common ancestors, they themselves are not so closely related as is generally supposed. The Malagasy has many words found also in the language of the Pacific Islanders, but grammatically, the former approaches much more nearly to the Malayan language than to any of the dialects of the Pacific. It is remarkable, moreover, that when the latter are compared with the Malagasy this language is found to agree with the dialects of the dark, or Papuan, race when it does not with those of the Polynesian race. This can be accounted for by supposing that all the Pacific dialects belong to the same stock, and that the Malagasy is a later offshoot than the Pacific dialects from the parent language. This is consistent with the opinion expressed

[1] According to Livingstone, the Baloka bellows are somewhat like those of Madagascar. "Expedition to the Zambesi," p. 314.

by the Rev. S. J. Whitmee in his edition of the Samoan grammar, that the Malayo-Polynesian languages, together with those of the Indian Archipelago aand the Malagasy, are "more or less changed branches from an original root stock which is not now found in any one spoken language."[1]

A consideration of the physical characters presented by the Malagasy would seem to confirm the conclusion arrived at on the ground of language. When the Malagasy do not approach the natives of Eastern Africa in feature, they resemble the Malays much more than the Kanaka of the Pacific. The full development of the beard generally exhibited by the last named peoples shows them to possess a racial element which is scarcely seen in Malagasy, a negative character in which the latter agree with the Malays and allied tribes of the Indian Archipelago. It is among these peoples that are found the art of working in metals and the use of the piston bellows, besides traces of the covenant-by-blood custom, which are considered so important in relation to the question of the origin of the Malagasy. It would not be difficult, moreover, to show, did time permit, that many customs which the Malagasy and the islanders of the Pacific have in common are equally prevalent among the dark tribes of the Indian Archipelago. There are other Malagasy customs which, although found among the Malays or other peoples of the Indian Archipelago, are not met with among the Polynesians, who, nevertheless, have a strong Malay element. The use of the blow-pipe of hollow bamboo may be particularly referred to, it not only having been preserved among the Malagasy, as a boyish mode of killing birds, but it being still in use with the Laos of Siam.

The general conclusion as to the race affinities of the Malagasy to be drawn from the facts mentioned, would seem to be that, while they present many points of agreement, either original or derived, with the natives of the African continent, their closest relationship is with the Mongoloid peoples who inhabit the Asiatic region of Indo-China. Mr. Whitmee, after referring to the derivation of the Malagasy from the same root-stock as the languages of the Pacific and the Indian Archipelago, remarks that "the Malay itself so far from being the

[1] This does not agree with the opinion expressed by Mr. A. H. Keane in "Nature," vol. xxiii, 1881, p. 220; but I do not think that the arguments he adduces are sufficient to controvert the opinion expressed in the text. I cordially agree with many of the general conclusions arrived at by Mr. Keane in his valuable memoirs on the Indo-Chinese and Oceanic Races, but I differ from him as to the relation between the Polynesians and the Malays, and as to the position to be assigned to the Papûans. My views on this subject are incidentally expressed in the paper referred to by Mr. Keane, "La Barbe considérée comme caractère des Races," in the *Revue d'Anthropologie*, 1880, p. 34, *et seq.*

root-stock is probably the most developed and most changed branch which has sprung from the original stock; for it has doubtless been more changed than the others by extraneous influences which have reached it from India and from contact with the Arabs." The Malagasy itself has, however, been affected by Arab influence, although not so much so as the Malay. This would be accounted for if the Indo-Chinese element, which probably represents the root-stock from which the Malagasy and the Malays were derived, and is perhaps recognizable in Madagascar in the Vazimba of tradition, was introduced into this island before the Arabs had come into contact with the natives of the Indian Archipelago. Dr. Mullens some years ago stated before the Anthropological Institute, in relation to this subject, that the Siamese excelled in navigation, and this paper supplies reasons for believing that the Malagasy are specially related to that people.

Probably it was at a much later date that the Arab element was introduced into Madagascar, and it is remarkable that the south-east part of the island where, according to tradition, Arab settlements were first formed, is that from which the Hovas are said to have spread. Dr. Mullens states that the Hovas appear to have entered the central plateau of the island from the south-east corner about 800 years ago, and if we suppose that they were about 200 years in spreading from the coast to that point, the date of their appearance there would agree pretty well with that given by Dahne for the landing of the first Arab settlers. It is extremely probable, therefore, that these Arabs and the ancestors of the Hovas were in some way connected, and I would suggest that the peculiarities exhibited by this people are simply the result of the Arab intermixture with the Vazimba or early inhabitants of the country. The Hovas claim the Vazimba as their ancestors, and probably they were such on the mother's side, but their dialect has retained much more than any other the evidence of "the Arabic contribution to the Malagasy civilisation and superstition." This view, which would trace the Hovas to an Arab source on the father's side at least, is quite contrary to the recognised opinion of their Malay descent, but both may be true in a sense, as possibly the Arab element was introduced, not directly from Arabia, but from the Indian Archipelago. If so, the so-called Arab immigrants would probably be of mixed blood. The real question, however, is as to the origin of the pre-Hova Malagasy, and this question is undoubtedly bound up with that of the origin of the early inhabitants of Sumatra and Java. This has not yet been satisfactorily shown, but there are reasons, physical and intellectual, for believing that the original race from which

they sprang had its home on the Asiatic continent. Probably both before and after the Malagasy left their Asiatic home the Hindus exerted great influence over the peoples of the Indo-Chinese Peninsula and of the Indian Archipelago. The civilisation of the Malays as well as that of the Malagasy bears the Asiatic stamp, and it has much in common with with that of the Hindus. Such must be affirmed also of the cultivated products of the country. Rice is the Malagasy staff of life, and it is remarkable that the ancient towns of the interior of Madagascar are crowned by a species of fig-tree, reminding us of the sacred character ascribed to the banyan by the Hindus. Whether the first Asiatic settlers in Madagascar found an earlier race inhabiting the island is doubtful, but the many features which some of the Malagasy tribes possess in common with various African peoples have probably been derived from a common source.

APPENDIX:—NOTE ON SIKIDY.

The Rev. Wm. Ellis states that *Sikidy* is a divination by means of beans, rice, straw, sand, or any other object that can be easily counted or divided, and it is worked from a board, or groundwork, of sixteen squares, arranged in four columns, on which are placed *one* or *two* beans or other objects, according to whether an odd or an even number is obtained, in the mode prescribed.

When all the squares have been filled, a series of eight different combinations of odds and evens will result. From these fresh combinations are formed, making sixteen in all, which are arranged in columns of four squares each. To each column is appropriated its own name, whether taken perpendicularly, horizontally, or diagonally, and the mode of ascertaining decisions is by comparing the columns according to certain rules. The object of these comparisons is to ascertain "what must be done in cases of real or imaginary, present or apprehended, evils," as well as to obtain desired favours. In the former case the required offering is a thing rejected, "and in throwing it away, the offerer believes he averts some dreaded evil." In the latter case, the offering operates as a charm to bring the desired favour. It is quite evident that *sikidy* may be used with a simpler object than that of discovering the charm required to avert evil or obtain good. It may be employed to ascertain whether evil or good is impending. This is shown by the fact that the table of the sixteen positions or combinations which may be formed in working the *sikidy* answers to the oraculum of the fortune-telling system known as Napoleon's Book of Fate. The arrangement of the numbers differs somewhat in the latter, but only in being more logical. The system is entirely the same as that on which the *sikidy*

is based, as is evident from the directions given for working the oraculum. Four lines of marks are to be made, according to fancy—answering to the beans, &c., of the Malagasy system—and the number of marks in each line are then to be counted. If the number in the first line is *odd*, one mark is to be made, if in the second line *even*, two marks are to be made below the first one, and so for the third and fourth lines. A row or column of dots is thus formed, resembling one of the sixteen figures of which the oraculum consists, each of which gives the answer to sixteen different questions. The fundamental feature of *sikidy* being thus common to it and to the Book of Fate, we cannot doubt that the Malagasy system of divination has been derived from an Asiatic source. From whom it was derived is shown by the Rev. L. Dahle's statement that "out of the three different tables of names that are necessary in the practice of it, the first one, containing sixteen names, appears to be entirely Arabic, whilst in the two others Arabic names are mixed up with Malagasy ones." From this we may, perhaps, assume that the Malagasy or their Asiatic predecessors improved on the simple fortune telling of the original system, by using it to discover the charm which would avert the impending evil or ensure the possession of the coveted good.

Discussion.

Mr. Keane was glad to find that the author had given up his former views regarding the claims of the Malagasy to be considered as autochthonous, but could not accept the new theory of their Siamese origin. The resemblance in habits and customs, on which it mainly relied, was always a poor argument on which to base community of origin, and was in the present case especially weak, because most of these customs could equally well be traced to Malaysia, as was evident from the interesting paper on the subject lately read before this Institute by Colonel Yule. Some of the usages, such as the absolutism common to most Oriental sovereigns, and the umbrella a symbol of rank and royalty wherever the sun scorched, from Ashanti to Japan, were absolutely worthless as racial tests, while it was on the other hand to the last degree improbable that the Siamese or any other Indo-Chinese races could have made their way, so to say, over the heads of the Malays directly to Madagascar. Here the linguistic argument had naturally a special force, and it was almost needless to remark, that it was entirely opposed to a Siamese, and in favour of a Malay migration to the island. The presence of a distinct non-Mongoloid element both in Indo-China and the Archipelago, of a quasi-Caucasic type, and allied in speech to the Malayan races but not to the Siamese, Burmese, or Annamese, had been entirely overlooked by the author. Yet until this new factor was taken into account it was impossible satisfactorily to discuss the many complicated questions touching the mutual relations of the Indo-Chinese and Oceanic races.

Mr. BOUVERIE-PUSEY remarked that the author of the paper seemed to suppose that human sacrifices and other similar customs were introduced into Madagascar by Arabs in the eighth century—therefore by Mussulman Arabs.

Mr. WAKE, in reply to Mr. Keane, would point out that the customs which the Malays and the Malagasy possess in common have been derived from the Asiatic source to which the Malays as a Mongoloid race must be referred. The Malagasy belong to this stock rather than to the bearded quasi-Caucasian stock of Eastern Asia, which, so far from having been overlooked by Mr. Wake, was referred to by him in his memoir on "La Barbe considérée comme caractère des Races," published in the "Revue d'Anthropologie," in 1880. In reply to Mr. Bouverie-Pusey, the *date* of the introduction of Arab customs into Madagascar is of secondary importance. It is not at all improbable that more than one settlement has been made in that island by Semitic or Hamitic peoples.

FEBRUARY 22ND, 1881.

F. W. RUDLER, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

It was announced that F. E. ROBINSON, Esq., had been elected a Member of the Institute.

The following donations were announced, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From Dr. E. B. TYLOR, F.R.S.—Kamilaroi and Kurnai. By Rev. Lorimer Fison and A. W. Howitt.

—— Doppelung (Reduplikation, Gemination) als eines der wichtigsten Bildungsmittel der Sprache. By Dr. Aug. Friedr. Pott.

From Miss BUCKLAND.—The Folk-lore Journal, Vol. I, Parts 3, 4.

From the AUTHOR.—L'Industrie acheuléenne dans le Loess de la Brie-Champenoise. By Le B^{on}. J. de Baye.

—— Wirkung arseniger Säure auf gesunde und kranke Haut. By Denis G. Zesas.

—— Who are the Irish? By James Bonwick.

From the GOVERNMENT OF NEW ZEALAND.—Statistics of the Colony of New Zealand, 1879.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, April, 1880.

From the SOCIETY.—Journal of the Royal Asiatic Society, January, 1881.

From the SOCIETY.—Proceedings of the Philosophical Society of Glasgow, 1879–80.
—— Journal of the Society of Arts, Nos. 1473, 1474.
—— Proceedings of the American Philosophical Society, No. 106.
—— List of Members of the American Philosophical Society, March 15, 1880.
—— Proceedings of the Royal Society, No. 208.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Correspondenz Blatt, February, 1881.
From the EDITOR.—Matériaux pour l'histoire de l'homme, December, 1880; January, 1881.
—— "Nature," Nos. 589, 590.
—— Revue Scientifique, Nos. 17, 18.

The Assistant-Secretary read a paper by Dr. W. J. Hoffman entitled, "Remarks on Arrow Poisons prepared by some tribes of North American Indians." A discussion ensued in which Mr. G. M. Atkinson, Dr. Huggard, Mr. A. L. Lewis, and the Chairman took part.

The following paper was then read by the Assistant-Secretary:—

The GAUCHOS *of* SAN JORGE, CENTRAL URUGUAY.

By DAVID CHRISTISON, M.D., Edinburgh.

BEFORE proceeding to describe the Gauchos, it may not be out of place to notice that the word is frequently mispelled in English works, the *u* being placed before instead of after the *a*; and partly for this reason the pronunciation also, which as regards the *au* and *ch* should be exactly as in the English word *pouch*, is often incorrect in this country.

The derivation of the word, like that of the French *gauche*, which it so closely resembles, is obscure. Its similarity in sound and depreciatory meaning to the Scottish *gowk* has been remarked.

In Spain it does not appear to be applied to mankind in any sense. In the dictionaries to which I have had access it only occurs as an architectural term, signifying "crooked, not level;" and even in South America its application as a designation for the inhabitants of the Uruguayan and Argentine campos is probably of no long standing, as Azara, writing in 1801, makes no use of it, although he gives a full description of the people now universally known as Gauchos. Invented in all probability by the more civilised townspeople as a term of contempt for their semi-barbarous fellow countrymen of the campos, it is accepted

by the latter with good humour, and they even apply it in a complimentary rather than a depreciatory sense to those among themselves who are more wild and daring than the rest.

It is not, however, a national term. Ask a Uruguayan Gaucho what countryman he is, and he replies, "An Orientál," a native, that is to say, of the Banda Orientál, or Republica Orientál del Uruguay. Neither does it necessarily imply any distinction of race, although the great majority of Gauchos are of mixed Spanish and Indian blood. Thus at San Jorge, in Central Uruguay, where I chiefly encountered the Gauchos, there were negroes, Brazilians, pure Spaniards, and even men of Northern European descent among them.

Perhaps to be a Gaucho implies mainly a certain mode of life, the free life of the campos, with its education in horsemanship, the management of half-wild cattle, and the use of lazo and bolas. But as these accomplishments are rarely acquired in any perfection without a training in them from childhood, almost all Gauchos, whatever their descent may be, are as a matter of fact natives of the campos.

It was only recently that Central Uruguay was peopled by the Gauchos. We are told by Azara that in his day the Charrua Indians, after a heroic contest with the Spaniards for two centuries and a half, still preserved their independence in the northern half of Uruguay, beyond the Rio Negro: and that a large extent of country to the south of the same river, exposed to their savage raids, was almost, if not entirely, uninhabited. I could not ascertain the date of their final subjugation, but in 1867 some old people in San Jorge professed to remember its occurrence. They asserted that the adult Indians of both sexes were ruthlessly slaughtered, some of the children alone being spared and distributed among the Spanish settlers. Doubtless, however, some adults escaped the massacre, and a Monte Videan journal recorded the death of a chief, believed to be the last of the Charruas, in 1865, at Tacuarembó, where he had resided for many years, wearing the simple costume, or no costume, of his ancestors, and conforming to civilisation no further than by drinking copiously of spirituous liquors. Down to 1828, when the late Mr. Fair acquired the property of San Jorge, the population must have been very scanty; at that time it included only a few families scattered over a district larger than the county of Midlothian, but in 1867 it had increased to 540 souls.

It would be vain to seek for Charrua blood in the present race of Gauchos at San Jorge. The majority, indeed, show strong evidence of Indian blood, and some might even pass for being pure Indians, but it is known that to people the country

after the destruction of the Charruas, Gauchos from distant provinces and Indians from the remains of the old "Missiones," probably Guaranys, were introduced, Moreover, any minute inquiry into the descent of individuals is rendered nugatory by the dissolute habits of the people, for among the Gauchos it is indeed a wise child that knows its own father. But that Charrua blood still exists in the land can hardly be doubted, as the Spaniards in their frequent Indian wars generally spared and appropriated the women and children who fell into their hands. And no Uruguayan need be ashamed to own descent from Charruas. Even the Spaniard Azara could not withold his admiration for the bravery and warlike skill of these Indians; their regular features and their splendid frames, handsomer, more robust and taller, he maintains, than those of his own countrymen. Cruelty and bad faith they probably learned from, rather than taught, the Spaniards, and their treatment of captive women and children was humane: they did not regard them as slaves but incorporated them with the tribe, and it is remarkable how often the Spanish authors record the unwillingness of their countrywomen both here and elsewhere in South America, when rescued from the Indians, to return to their own people.

It would be a vain task to unravel the confusion of races, even in so small a population of Gauchos as that of San Jorge. Suffice it to say that every variety of colour may be seen among them, from the purest white with light eyebrows and flaxen hair to the blackest negro and reddest Indian. This much only I would add, that although the purest Indians, probably of Guarany origin derived from the Missiones, were far from handsome, having flat noses much expanded at the end, with thin dilated alæ, high cheek bones, and bloodshot eyes seeming to peer through narrow slits, nevertheless a certain infusion of Indian blood, presumably derived from the handsomer Charruas, and showing in the reddish skin, lank black hair and scanty beard, seemed to improve rather than deteriorate the Spanish race, at least among the men. Such individuals had often remarkably regular finely cut features, with noses more of the Greek than the Roman type, and excelled in looks the men of the towns, in whom Indian blood is rarely appreciable, and whose features tend to heaviness.

With all their diversity of origin there is a certain general resemblance among the Gauchos due to their mode of life, which marks them off as a strongly characterised variety of humanity. Although revealed mainly in moral qualities, it may be observed in some physical aspects also. Thus their figure is erect, with the shoulders well thrown back, and there is often a

marked hollow in the loins—characteristics due no doubt to their firm seat on horseback and frequent swinging of the lazo and bolas. The voice also is as a rule deep and husky, and the laugh harsh and guttural among the men, while the women are very apt to speak in a shrill falsetto. Their keenness of vision is most remarkable. A Gaucho descries an animal in the distance long before it is visible to a European, and can tell whether it is a horse or an ox, and even describe its colour, when the European merely sees a shapeless, colourless speck. Azara, treating of the good eyesight of the Gauchos and their power of distinguishing animals, remarks: "I have only to say to one of these men, 'There are 200 horses of mine; take care of them,' he looks attentively at them for a little, and though they should be half a league off he knows them all."[1] According to the same writer the Charrua Indians had similar remarkable powers, from which they derived an immense advantage in their campaigns against the Spaniards, as they could freely watch the movements of the latter without requiring to conceal themselves. Aided perhaps by this power there is another characteristic of the Gauchos,—that of finding their way unerringly over the monotonous campos, which to a stranger seem so devoid of landmarks. They cannot explain the methods which they follow, and their peculiar skill in this respect, developed in the so-called "vaqueanos" more highly than in others, is not easily accounted for. Probably it depends on constant observation from childhood of minute features in the landscape, becoming at last an unconscious habit, aided, perhaps, by watching the heavenly bodies and the wind. But it must be admitted that it is often difficult to offer any rational explanation of this faculty. Thus in riding up a long slope of half a league or more, when all distant landmarks are hidden, a "vaqueano," conversing all the time and apparently paying no attention to the route, nevertheless keeps a perfectly straight course, while even an experienced European, although he gives his whole mind to preserving his direction, is sure to find himself far out of his reckoning on arriving at the top of the slope.

In general the Gauchos are fine, well-developed men with capacious chests and muscular limbs. As they almost live on horseback, rarely walking a hundred yards at a stretch, it might be expected that the lower limbs would be deficient in muscle; but as much of their work with cattle and horses has to be done on foot, and as they are partial to dancing, this tendency is counteracted. Their weight is probably quite equal to that of Europeans. Twenty of them between the ages of 25 and 40, not selected in

[1] I cannot help thinking that Azara, usually so trustworthy, has given way to exaggeration in this instance.

any way, were weighed by me at the Estancia del Cerro, and averaged 151 lbs., deducting clothing, the heaviest being 190 lbs. and the lightest 107 lbs. The latter was exceptionally light, as the next above him weighed 132 lbs. Taking in eight others about 20 years of age, the average was only reduced to 148 lbs. It is possible, however, that the weight may vary in men from different localities, as two parties of strangers passing in charge of cattle seemed to be composed of smaller men than those at San Jorge.

The occupations of the Gauchos are not numerous, and most of them prefer an irregular unsettled life. Unwillingly do they take to anything in which horsemanship does not play a part, and a half civilised Gaucho has even been seen trying to build a hay stack by riding up an incline of hay towing behind him a bundle tied together by his lazo! The purest Gaucho is he who says with some pride "Mi casa es mi caballo y recado," "my house is my horse and saddle." He wanders about taking odd jobs now and then to keep himself in funds, and turning up at all race meetings and balls, gambling away his money as fast as he makes it. The cattle puesteros, on the other hand, may, be considered the aristocracy of Gaucheria. They have a house, lead comparatively settled lives, and have some responsibility. Intermediate between these classes are the ordinary peons, who assist in the management of cattle, or are hired by the troperos to drive the herds to the saladeros at the shipping ports, or by the carreteros to act as picadors in the wagon trains. Often they have no home, and if married the family lives with some more fortunate friend. Shepherding is rather despised, as not requiring their peculiar accomplishments; nevertheless it is much sought after at times, as giving some protection from being pressed for the army, peons and unsettled men being the first to be taken. Even the wildest spirits among them cannot resist the temptation of high wages at the shearing season. All, however, both men and women, shear very roughly, and the sheds resound with the shouts for the "medico," or tar boy, to smear the wounds of the unlucky animals that come under their hands. Some of the peons get accustomed to labour on foot about the estancias, cutting wood, building sheds, putting up corrals, &c., but if they stick to such employment, or, if rising higher in the scale, they become landowners, their title to be called Gauchos is dubious.

The only kind of manufacture among them is the cutting and plaiting of raw hide into the various articles of horse gear required in their occupation. Some of these are very neatly finished and ornamented with silver, besides being usually of great toughness and strength.

Agriculture and horticulture may be said to be quite

unknown to them in their primitive state. This want of cultivation contributes to give their ranchos, whether built by themselves of sticks and mud, or constructed of brick by their employers, a singularly unhome-like aspect. Nakedly they stand on the top of the low ridges, beside the invariable corral, with perchance an "enramada" or small shed for tied-up horses, formed of a few uprights roofed with branches. The rancho is often half in ruins, as under the influences of the weather the mud soon cracks and falls away, although rendered more adhesive by a mixture with manure, accomplished in characteristic fashion by cruelly riding a despised mare or worthless horse round and round in the sticky material till the ingredients are thoroughly intermingled. But in that mild climate a solidly constructed house is hardly required for a great part of the year, and it is easy to patch it up with mud or hides when the winds or frosts of winter are unusually severe.

The education of the Gaucho begins very early. He has taken his first lessons in riding before he is well able to walk, and while still tottering about the doors swings the miniature lazo and bolas round his head *secundum artem*. It is amusing to see a little fellow of three or four, stark naked, his face beaming with excitement, and with lazo revolving round his head, in keen pursuit of a hen, while the cock, taller than himself, looks on with an indignant chuck! chuck! As he gets older the boy tries his 'prentice hand on dogs, who sometimes show their superior intelligence by throwing themselves flat on the ground so as to baffle his efforts. He then ascends to colts and calves, and at last the glorious day arrives when from horseback he can arrest the most savage bull in its mad career, or on foot lazo the swiftest horse, as it gallops from the corral, by whatever leg he chooses. Meanwhile he has learned to kill, cut up, and cook sheep and cattle, to make horse gear from raw hide, and his education is completed.

The diet of the Gaucho is one of the simplest in the world. Not long ago it consisted as regards solids almost entirely of beef, although it might occasionally be varied with the flesh of armadillos, iguanas, ostriches, or other wild animals, or ostrich eggs. The use of milk was entirely unknown, and at the present time, even at English estancias, a stranger may often be tempted to exclaim, as he surveys the numerous herds on the campos, "cattle, cattle everywhere, yet not one drop of milk." The only vegetable substance universally taken is Paraguay tea, imported from Brazil, and known as "yerba" "the herb *par excellence*," but when infused called "maté," from the small gourd out of which the infusion is sucked through a tube. Notwithstanding this rigid simplicity of diet, scurvy appears never to have occurred

among the Gauchos, protected no doubt by their active open air life in a healthy climate. In recent times their food, except in remote districts, has been somewhat more varied by the spread of "pulperias,"[1] country stores, which have introduced various kinds of luxuries for the benefit of the European residents, and which are occasionally patronised by the Gauchos. But they have little taste for such things, and the only vegetable I have known them take in any quantity is the water melon, which was hawked about San Jorge in large wagons for a few weeks in summer. On the whole it remains true that their diet is in general purely animal. Their drink, however, is varied now by the almost universal "caña," a coarse spirit, which, although rarely taken to great excess, has nevertheless proved to be an evil gift, as it is the habit of the Gauchos, when collected at pulperias, to treat each other to small drams of it, and the excitement thus produced too often ends in fatal quarrels.

The cookery of the Gauchos is as unvaried as their diet, being confined entirely to roasting, which they accomplish very quickly by slanting thin pieces of meat upon spits of wood or iron, stuck into the ground at one end over a brisk fire. When the "asado" is ready, knives are drawn and lumps of beef, cut from the mass, are grasped in the left hand at one end while a proper mouthful is seized with the teeth at the other; the morsel is then skilfully severed by a cut with the knife from below, experience having taught that an upward cut is less likely to amputate the nose than a downward one to damage the chin. Although there is not much room for luxury in such a simple system, the Gauchos have their tit bits, some of which seem strange enough to the European. Generally speaking the meat of their half wild cattle is hard, dry, and deficient in fatty constituents. Nevertheless, their favourite delicacy "carne con cuero," or meat roasted in a complete envelope of hide, was too rich for my taste. Although often so tough that after a few vain efforts at mastication it is necessary to bolt the morsels of campo beef, there is no difficulty in digesting it, and English estancieros soon come to prefer it to the tender rich meat of their own country. The spread of sheep farming has led to the substitution of mutton for beef in many districts, but the Gauchos take to it unwillingly, declaring that it is inferior in nourishing qualities. In their primitive state, and often in a more civilised condition, they eat but once a day, towards sunset, when their work or journey is over, but they at no time object to a "maté," as they justly place great reliance on the

[1] So called from "pulque," an intoxicating drink made in Mexico from the *Agave Americana*, although in the Southern Spanish Republics this "pulque" is quite unknown.

reviving and supporting effects of their favourite "yerba." When assembled together at meals there is usually much joking and laughter, and afterwards they pick their teeth with knives or "facons" (falchions) and as the latter are about two feet long, one expects every moment that from the enormous leverage their teeth will be sent flying out of their jaws.

The Gauchos of Central Uruguay speak Spanish with tolerable grammatical accuracy, but usually in harsh, rough accents; and they entirely ruin the beauty of the language by invariably changing the liquid sound of the *y* and *ll* into that of the French *j*, and by the elision of certain consonants, such words as *recado*, *pescado*, being pronounced very like *recow*, *pescow*. With the exception of the names of some places, such as the Rivers Yi and Tacuarembo; trees and plants, such as Ombu, Tala, Ñapindai, Mio-mio; and animals, such as Ñandu, Tatu;—the Indian language seems to have entirely disappeared. Many Indian names of plants and animals, given by Azara at the beginning of the century, are now entirely unknown to the Gauchos of San Jorge.

The Spanish custom of rejoicing rather than mourning at the death of young children is kept up by the Gauchos, but as their children are invariably much spoiled, their claim to go straight to heaven as "Angelitos" or "Angelitas" seems questionable to an outsider.

In remote situations the dead are exposed in coffins on the lonely campos until nothing remains but the bones, which are then stored in boxes, often for years, till the friends take it into their heads to remove them for burial to the nearest Campo Santo. These cemeteries are usually kept in a shocking state, the graves being shallow, and the bodies often actually half exposed.

The amusements of the Gauchos are horse racing, music, dancing, and gambling. The first has been so often described that I shall pass it over. Their only musical instrument is the guitar, on which a fellow may be seen tinkling a few bars, repeated without variation for hours together, surrounded by a dreamy audience sucking the indispensable "maté." Now and then with overstrained voice and in nasal tones, but in good time and tune, he may burst into song, often improvised; and however humourous or sarcastic the words may be, as evidenced by the laughter which greets a happy hit, the airs are invariably of a melancholy cast, often resembling chants, any number of words being huddled into a line to suit the convenience of the improvisatore. A singular effect is produced by long pauses, not only between the verses but in the middle of the lines, during which nothing is heard but the tinkle of the guitar, additional point being thus given to the sarcasm which at last

concludes the line. Generally the last note is much prolonged and unlike the rest of the song sounds to a European ear much out of tune. Probably these are the "Chansons de Peru" of Azara, called "Tristes" in his day, but not now known by that name, at least at San Jorge. One or two dismal unmusical chants I was inclined to believe might be of Indian origin, but we have the authority of Azara for the extraordinary fact that both music and dancing were entirely unknown to the Indians of the South American plains. Much of the singing is of course in praise of the señoritas, and I have seen a lover, seated on the ground at his mistress' door, tinkling and improvising for a good hour before her hard heart was sufficiently softened to admit him. The women do not sing in public, but may be heard crooning to themselves indoors.

The dancing of the Gauchos consists mainly in a very slow waltz or polka to a tune of two or three bars, repeated *ad infinitum* on the guitar. Ancient dances of a more stately kind were in vogue until lately, but are now considered unfashionable and are rapidly going out of use. It was my good fortune to see one of them at a "balle" at the Estancia del Cerro, a description of which may not be out of place, as it will afford at the same time a glimpse of Gaucho manners and character. On entering the large dimly lighted shed, our party was received by a serjeant of police, who politely conducted us between a double row of women, seated demurely upon wool bags, to the centre of the room. Here a slender, fair haired, gaily dressed dandy started up and in the prettiest manner insisted on my taking his seat. He was the most distinguished man in the room, for being unrivalled in the use of the knife, he had been the most successful homicide in the country side, throughout which he was universally known as "El Pescado" or "El Pescado dorado," from his great quickness and agility. Presently a dark, well featured, smiling man, with a strong dash of Indian blood, and a jaunty sailor-like manner, offered refreshment, in the shape of a gulp of caña from the bottle mouth, and I thought it prudent to go through the motion of taking some, to avoid the risk of offending the illustrious murderer Diego Maragatta, surnamed "El Gaucho del Carpenteria," the Gaucho *par excellence* of the district. Turning to a man standing near, I ask who the pretty girl opposite may be, and he knitting his brows replies fiercely "That's my daughter: if I meet her in the camp I'll cut her throat!" It appeared that against his wishes she had mated with a very ill-looking youth with much Indian blood, who had fled from a distant part of the country after committing a murder.[1] I

[1] He afterwards killed his father-in-law in single combat with the knife.

begin to think that we are in strange company, but everything goes on with so much quietness and decorum that it is impossible to feel any uneasiness. The "bastonero" or usher of the white rod now marshals the couples who are to perform in the national dance, called by a name sounding like "Pericón." To this official is entrusted the choice of dancers and even of partners, and he was so ungallant as to conduct the women to the men, a relic, perhaps, of Moorish or Indian want of courtesy to the fair sex, which may possibly be traced also in the tendency of the women on public occasions to huddle together apart from the men, and in the comparative gravity and reserve of their manners, while the men are laughing and joking in their presence. But there is no frivolity now; in fact, a "balle" seems to be rather a serious affair. The men receive their partners in silence and places are taken as if for a quadrille. The negro musician, who has already improvised some lines in honour of the English visitors, chants in nasal tones a few verses in praise of a bachelor's life and then the dance begins. It consists mainly of a slow smoothly-gliding waltz, with frequent simultaneous short pauses, but every now and then the partners set to each other, the men keeping time by snapping the fingers, and the whole perform a figure, after which waltzing is resumed with a change of partners. The figures also are changed by word of command, and occasionally one of the dancers breaks in with an extempore verse of song. All dance with ease and grace, gliding rather than dancing round, while the slow time gives scope for those gentle movements of body and limb which constitute the principal charm of dancing, now only seen among us as exaggerated or caricatured on the stage. A frequently repeated simultaneous stamping with the feet, heard above the feeble tinkle of the guitar, emphasising certain passages in the dance, but never carried to excess, produced a certain warlike effect, heightened by the mediæval costume of the men, and altogether the mind was impressed by a certain grace, mystery, and dignity which it would be vain to look for in the rapid whirling and stiff angular attitudes which pass for dancing in the fashionable ball room. It was easy to see, however, that only the older men and women were perfect in these interesting movements and that their beautiful national dances are disappearing at the first contact with civilisation.

The games of the Gauchos are all of a gambling nature. A favourite one consists in throwing the "Taba," one of the small bones of the horse, the thrower winning or losing according to the side which turns uppermost. Two men, standing a few yards apart, throw it alternately, while the bystanders bet upon the event. For hours daily and for weeks together the Gauchos will

play at this simple game. They have also several games with cards, and I have seen a couple of men squatted on the ground from sunrise to sunset playing at "monte," closely watching each other, with knives drawn ready to hand in case of cheating. They will even play for days and nights without ever stirring from the place, and with such keenness that I have seen a man loose at a sitting in rapid succession six weeks pay gained by hard sheep-shearing, his whip, saddle, bridle, poncho, hat, boots, chiripa, and horse, finally riding off in his shirt on a borrowed steed, with another ruined gambler in a similar plight holding on behind him. But all this implies little suffering in a country where absolute want is unknown, and hospitality is universal. With help from friends and a few weeks labour the gambler is soon as gaily dressed and well mounted as ever.

Passing on naturally to a consideration of the other prominent faults of the Gaucho, his dissolute habits, already adverted to, and an almost total want of religious or reverential feeling, deserve special mention. These may be in a great measure accounted for by the imperfect supervision of their spiritual interests, the priests being few in number and too often deserving the bitter hatred or contempt which is commonly expressed for them by even the better class of people. The chief results of their rare visitations are the baptism of children and the persuasion of a certain number of parents to accept the sanction of mother Church to their union; but most prefer to be free from the marriage tie. As an example of their irreverence I may mention that when a violent thunderstorm burst upon a party of about fifty men and women engaged in shearing at the Estancia del Cerro, every peal was saluted by a burst of cheering or derisive laughter. To counterbalance this defect it is some set off that the Gaucho is tolerably free from superstition. As we have already remarked, he cannot be altogether absolved from the vice of intoxication, although it is rarely carried beyond the stage of excitement.

But all these faults sink into insignificance when compared with the inhumanity and love of bloodshed which in many Gauchos become a second nature. The circumstances of their lives naturally lead to this result. Accustomed from infancy to see animals killed by the invariable method of throat cutting, trained from an early age in the art themselves, and in the harsh though spirit-stirring modes of taming and managing horses and cattle by the lazo and bolas, can it be wondered at if they are perfectly callous to the sight of blood and suffering, or come, as too often happens, to have a positive enjoyment in it? Even the horse, his constant and indispensable companion, fails to draw from the Gaucho the slightest

symptom of affection or sympathy, while the dog is treated at best with a kind of brutal indifference.

No stranger who has witnessed the frantic efforts of an animal, singled out for slaughter from the herd, to escape from the lazos by which it is dragged along at an unwilling gallop, and has heard its hoarse moans and final agonising cry, can readily forget the painful impression produced on his mind; yet the Gauchos, as they force the poor creature along, laugh and mock at its sufferings, utter coarse jokes as they hamstring it, and grin from ear to ear when the fatal stroke is given. I have even seen a mere boy gallop up with a sheep on the saddle behind him, cast it off, and jumping down cut its throat almost as it rebounded from the ground, his face beaming with savage delight. Indifference to human life is but a further step in the path of cruelty, and at last the final stage, the "gusto de matar," or love of manslaughter for its own sake, is too often reached. And such is the depraved state of feeling on this subject among the people that this taste neither diminishes the natural cheerfulness of the murderer, nor in the slightest degree hinders his reception into Gaucho society. Thus a short thickset fellow at work in a corral with many others, whom he kept in constant laughter with his jokes, has been pointed out to me as a man who had cut many throats; and I have seen another, on quite intimate terms with his neighbours, who during the wars used to beg as a favour that he might execute prisoners.

This unhappy homicidal tendency is perhaps even in a greater degree promoted by the frequent revolutions which are the curse of the Spanish Republics. The Gauchos suffer more than the townspeople from these senseless disturbances. Far removed from the restraints of law and order, teeming with wild reckless elements, it is among them that the selfish adventurers who pass for politicians in Uruguay find ready materials to form the nucleus of an army. Once started, such a force gains strength by compelling every Gaucho it can lay hands on to join under penalty of death. Government "partidos" follow the same plan, and thus the poor Gaucho to save his throat must join one party or the other without having any idea what they are fighting about. It is often a mere matter of chance whether he becomes a "Blanco" or a "Colorado," but once identified with either party he is involved in quarrels and blood feuds which cause the death of many a poor fellow even in times of peace. Indeed, murder unconnected with political or private feuds, and for the mere sake of plunder, was comparatively rare in 1867, and was said to have been still rarer in earlier times; but I am informed that within the last twelve years it has become sadly common on both sides of the Rio de la Plata. Even in the matter of duelling the

Gauchos seem to have gradually become more savage. Thus D'Orbigny, writing about 50 years ago, asserts that the Gauchos had grown more fierce than when under the rule of Spain, yet he says that their fights were rarely fatal, the great object being to mark the face; but now the throat and abdomen are aimed at, and the wounds inflicted are generally mortal. The knives used are always ready to hand, stuck in the belt at their back. They are of two kinds, one about the size and shape of a small carving knife, the other, called a "facon," is in fact a short cross-hilted sword about the length of the deadly ancient Roman weapon. Duels do not take place by appointment, but on the spur of the moment, from a sudden quarrel, or to avenge an ancient grudge: no bystander attempts to interfere, and there is no effort to ensure fair play. Each must do his best with the weapon he has at the time.

No statistics exist of the mortality from homicide in Uruguay, but some idea of its extent may be formed from the following facts. During the ten months I spent at San Jorge nine homicides occurred in the neighbourhood among a population certainly not exceeding a thousand souls: and I doubt if it was an exceptionally bad district, as visitors from other quarters assured me that their condition was no better. Again, of sixteen young men whom I knew at that time no less than six have since perished by the knife, and a seventh is believed to have had the same fate. Lastly, a friend long resident in the district informs me that in his belief nearly one-half of the young Gauchos he has known have died a violent death.

Scarcely any attempt is made by the authorities to check this fearful waste of life. Regulations with that view are indeed sometimes passed—such as one forbidding the wearing of facons—and no nations excel the Spanish Republics in the drawing up of high sounding regulations; but they are like new toys to a spoilt child, and after being played with for a time are utterly neglected. The general state of feeling on the subject of capital punishment, too, is a great obstacle to the administration of justice. Murders and homicides by the thousand yearly cause little or no emotion, but the bare idea of execution after formal trial is insupportable to the strangely inconsequent Spanish mind. A murderer feels himself nowhere so safe as in prison. After a few weeks or months, during which the first feelings of revenge have been dying away among his enemies, he finds the prison door open through the influence of some "gefe politico," eager to secure the friendship and support of daring unscrupulous characters like him, and he walks out, probably amidst the general sympathy of the public. Not content however with the practical non-existence of capital punishment, the

Chamber of Deputies must needs abolish it in 1867, amidst joyful acclamations and really beautiful humanitarian speeches. But alas! within a week a revolution had broken out and the successful Colorados were complacently cutting the throats of their vanquished rivals the Blancos in the streets of Monte Video, or shooting them by the score at the Cabildo, still quite happy no doubt in the thought that they had abolished capital punishment, to the admiration and envy of the civilised world! The only real check upon violent crimes in the campos is effected by certain commandantes of police, who knowing that their prisoners if once lodged in jail are safe from punishment, quietly cut their throats *en route*, alleging that they were trying to escape.

Hitherto we have regarded the Gauchos mainly from the worst point of view, but it would be a great mistake to suppose that they have no redeeming qualities. In general they may claim to be brave, hardy, temperate, free from meanness, hospitable, and faithful to engagements; and they have a certain good humour, native intelligence and wit, which make them no bad companions in the field to even cultivated Englishmen. Nay, as D'Orbigny, who knew them so well, asserts, they are even capable of cherishing lofty ideas. The very worst of them do not sink to the depth of degradation which is so hopeless and distressing in our criminal classes. It is rare that something of the dignity of manhood is not retained, some point of honour beyond which they will not go. Of this I have known many well authenticated examples. Thus, one of the wildest characters in the country undertook to keep up communication between San Jorge and Monte Video, when a ten years war had completely disorganised society, and continued to ride to and fro regularly, at the risk of his life, with large sums in gold on his person, without betraying his trust, or even asking for higher pay than in time of peace. Another sulky repulsive-looking fellow of very bad character showed a dog-like fidelity to Mr. Watson, then in charge of the Estancia del Cerro, who had treated him kindly, and could be implicitly trusted to do whatever he undertook for him. Poor Bartolo! his fate illustrates Gaucho character so well that I may be pardoned for describing it here. One of his enemies, a brother of Rosano, the police commandante of the district, taking advantage of being promoted to a lieutenancy in the force, determined to apprehend Bartolo at a rancho where he was living. A woman descrying the approach of the party, urged Bartolo to mount a horse which stood ready saddled and ride for his life; but, saying he would never turn his back on a Rosano, and drawing his knife, he rushed out to meet his foe. Rosano immediately ran him through the body

with a spear, and standing over the dying man, gloried over him saying, "The last time you saw me I was nobody, now as you see I am a great man," and so forth. His followers indignantly cried out "Let the man die in peace," and shamed him into silence; but to complete his triumph Rosano insisted on spreading his recado on the ground where Bartolo fell, and slept peacefully all night beside the dead body.

I had ample opportunity of studying the Gauchos for about a month at the Estancia del Cerro, where about fifty of them, men and women, were employed as shearers, and was surprised to find them so light-hearted and good natured. A continual fire of jokes resounded through the sheds, and a good deal of unmerciful teasing went on, but I rarely saw any sign of ill-temper. Towards evening, indeed, it seemed sometimes as if they were in open mutiny, as they shouted and yelled "Hasta mañana!" "No trabaja mas!" or "Caña, la caña, viva la caña!" but a very small dram of spirits changed their cry into "Viva el patron," and they resumed work with redoubled energy. They were evidently easily managed by kind sensible usage, and were no grumblers or sticklers for the minutiæ of their rights. Even the bad characters were on their honour, and our old friends El Pescado and Diego Maragatta might be seen seated side by side at dinner, perfectly civil to each other, although they were deadly foes, and the previous year El Pescado, riding suddenly up to a group of gamblers, had sprung from his horse, drawn his facon, and singling out Diego, aimed a furious stroke at his throat, before he could be seized and disarmed by some of the police who were fortunately present.

But now the general harmony was only broken twice. First, when two mere boys quarrelled, and at once ran to the corral to fight it out with knives, followed by the whole company, not one of whom showed the slightest wish to interfere, and doubtless bloodshed would have ensued but for the vigorous remonstrances of Mr. Watson. Secondly, when a foolish lad, pressed to pay a debt by El Pescado, got into a passion, and suddenly attacked the great warrior, deceived perhaps by his appearance and manner—for "the Fish" was not at all formidable-looking, being short of stature and slender, with fair complexion and hair, and a very light moustache, while his gait was slow and lounging, and his habit of leaning his small head with its hooked nose and retiring chin alternately from one side to the other gave him a certain air of affectation and effeminacy. Now, however, forced to defend himself, his whole manner changed into one of keen watchfulness, as in fighting attitude, and looking along the blade of his knife held close to his cheek, he warned the lad to keep off. As the latter, however, still

advanced, and made a cut at his thigh, the Fish lunged forward with surprising quickness, and struck his puny foe a resounding whack on the cheek with the flat of the blade, which nearly knocked him over, and brought him to his senses. The boy sat down scowling and sulking till an old woman persuaded him to avert the Fish's wrath by paying his debt, but the great man with a disdainful gesture flung the coins far away into the camp.

Diego Maragatta kept entirely free from scrapes; yet he was altogether a worse man than El Pescado, who was a bit of a wag, and although a great fighter had not much evil in him. But Maragatta, in spite of a smooth brow, smiling face, and the uniform of a police serjeant, could not hide that he was by nature and never could be anything else than a brigand. Of course both of these men subsequently came to violent ends. El Pescado, excited by Caña, forced a man to fight with him about some trifle, and was killed: while Maragatta, degraded and dismissed from the police force, was slain by a serjeant after a long and desperate single combat within sight of San Jorge house.

The "policia," to which I have often referred, is a very fluctuating body in composition. Recruited from the wildest characters in the country, it is no uncommon thing for even well known murderers to become serjeants, only of course to be speedily outlawed for some fresh breach of the law. Such a force is often used as an instrument of political oppression, or to carry out schemes of private revenge by the commandantes, who are generally men of indifferent character and little education, like the one in the San Jorge command, of whom it is related that, after painfully signing his name, he was in the habit of counting the letters to see if they were all there, and on one occasion having slowly with the aid of his finger reckoned "Uno, dos, tres," &c., he exclaimed "Carramba! falta uno" ("*One is missing*"), adding with a bewildered look, "Cual sera?" ("*Which will it be?*") The adventures of the police are often ludicrous enough, as when Commandante Rosano spent some days riding about the country with a dozen men in search of a stolen article of horse gear, and found it at last concealed under the saddle of the serjeant of his party. The offender was immediately staked out, a cruel punishment imitated from the mode of drying hides, the legs and arms being tied at full stretch to stakes, so that the body cannot touch the ground. Some "Ewan of Brigglands," however, is generally at hand to cut the bonds of the "Rob Roys" of Uruguay, and in the morning the serjeant was not to be found.

So much has been written about the horse gear and horseman-

ship of the Gauchos, their use of the lazo and bolas, and their mode of taming wild horses and cattle, that I shall say nothing on these subjects. Their connection with the dog, however, is less known, and deserves a few remarks. Nearly every solitary "puesto" has a few dogs lounging about the door ready to give the alarm if a stranger approaches, and at the larger estancias packs of a dozen or more may be seen. They are of some little service in driving cattle, but are mainly tolerated as watch dogs and scavengers. Their condition is little superior to that of the Eastern street pariahs. Picking up their food for themselves amidst the garbage of corrals and slaughtering places, they lack the civilising influence of being fed by a master's hand, and although they show a certain obedience to their nominal masters, it is without any sign of affection,—the natural result of the cruelty or utter indifference with which they are treated. To strangers they are fierce, even dangerous. Every variety of size, shape, and colour is found among them, but the majority are heavy, massive, powerful animals. Rival packs meeting in the camp fight desperately, and I have seen the wounded stragglers with torn ears and bleeding throats returning from such a combat, leaving others of their number dead upon the field.

Dogs ("capones") are still occasionally trained by the Gauchos of Central Uruguay, in the way described by Mr. Darwin, to take daily charge of their flocks, without aid from man.

Dogs run wild are nearly exterminated. They were described as being tall, lanky, and ugly, with erect pointed ears, and a bristly strip on the neck; their bark was peculiar, but they were not given to barking.

It has often been a matter for surprise that Englishmen should be able to live safely among such a turbulent race as the Gauchos; but there is method in their homicidal mania, and the English estanciero, placed in a higher sphere, and independent of their political or private feuds, runs little risk in ordinary times. Moreover, here as elsewhere, the innate capacity of the British for managing semi-barbarous races by a combination of fair dealing, firmness, and kindness is conspicuously manifested; and it is only when protracted revolutionary struggles have completely disorganised society that their position becomes insecure. On his part the Englishman often acquires a certain liking for the Gaucho, which grows rather than diminishes with time, and not unfrequently prefers him as a peon to the natives of more civilised countries, not excluding his own. Sometimes he finds himself drawing comparisons between the free open air life of the Gaucho, together with the touch of dignity in his thoughts, manners, and bearing, and the squalid roughness of

great masses among our own countrymen, which, it may be, rudely awaken him from old delusions of national pride.

But however this may be, the Gaucho type cannot be a permanent one, and in the Banda Oriental is even now being rapidly modified. The more strict definition and greater subdivision of property, the increase of sheep farming, the change in the management of cattle to the tame system, the rapid extension of wire fencing, and the introduction of agriculture, conspire to cramp his movements, and to do away with the necessity for his peculiar accomplishments.

It is even to be feared that he himself will pass away, and that the race which ultimately possesses the campos will show but slight traces of his blood, or that of the aboriginal Indian race which he represents. Besides the enormous mortality from murder and homicide, many perish under the hands of the old women and quacks who, in the almost total want of doctors, have a clear field for carrying out their rough and violent modes of treatment. Powerful purgatives and emetics derived from native herbs are their great stand-by, and are indiscriminately administered with results that Sangrado might have envied. Among other rude remedies a favourite one for rheumatic fever is to carry the patient to a neighbouring stream, even on a winter morning, and immerse him for a quarter of an hour in the ice-cold water. I have known a fine young man die on the bank after this treatment before he could be carried home. But nothing shakes the faith of the people, and with a provoking perversion of logic they generally declined my advice on the ground that I might, no doubt, understand the diseases and remedies of my own country, but could not possibly know anything about theirs. More recently, however, they have amply appreciated the services of English doctors who have settled among them.

This great mortality arising from so many causes would certainly be checked under a better government, and advancing civilisation might be expected to do its part in softening the ferocity of the Uruguayan Gaucho; but even under much more favourable circumstances time would be required ere the wild horseman of the campos could be broken in to settled habits. And it is doubtful if this time will be allowed him. Already other more industrious races are thrusting him aside, and even the better class of native estancieros give way before this pressure. The Brazilians in particular, advancing from the north, threaten to accomplish a peaceful conquest of the whole country by purchase. It is believed that they have for some time been in possession of half the land to the north of the Rio Negro, and they have recently begun to purchase extensive tracts on the south side of that river. Bringing with them their

negroes and other dependants, they have no need of the Gaucho, who thus tends to disappear entirely from the scene: a result which, if it becomes general, will be regretted by not a few Englishmen, who from long intimacy with the Gaucho have learned that much of the evil in him is due to the neglect and crimes of his Government, and to wonder that so much good should be left, considering the unfavourable social and moral conditions under which he lives.

MARCH 8TH, 1881.

F. W. RUDLER, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—The Cause of Colour among Races. By W. Sharpe, M.D.

From the ROYAL ACADEMY OF SCIENCES, COPENHAGEN.—Oversigt over det kongelige Danske Videnskabernes Selskabs, 1880, No. 2.

From the ACADEMY.—Bulletin de l'Academie Impériale de St. Pétersbourg. Tom. XXVII, Nos. 1 and 7.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1475, 1476.

—— Boletim da Sociedade de Geographia de Lisboa. 2nd Serie, Nos. 1, 2.

—— Journal of the Royal Geological Society of Ireland, Vol. V, Part 3.

—— Proceedings of the Royal Geographical Society, March, 1881.

—— Journal and Proceedings of the Royal Society of New South Wales, 1879.

—— Transactions of the Asiatic Society of Japan, Vol. VIII, p. 4.

—— Proceedings of the Asiatic Society of Bengal, July and August, 1880.

—— Proceedings of the Royal Society, No. 209.

From the EDITOR.—Journal of Mental Science, January, 1881.

—— "Nature," Nos. 591, 592.

—— Revue Internationale des Sciences, 1881, No. 2.

—— Revue Scientifique. Tom. XXVII. Nos. 9, 10.

---- Matériaux pour l'histoire de l'homme. Tom. XII, No. 2.

—— Education, No. 2.



FIG. 1.



FIG. 2.

PLATFORM DWELLINGS, ASSAM.



FIG. 1.



FIG. 2.



FIG. 3.

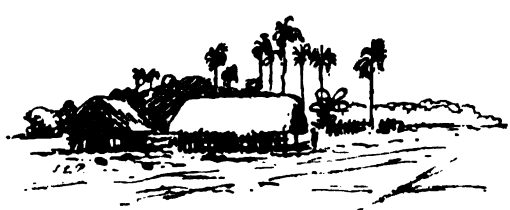


FIG. 4.

PLATFORM DWELLINGS, ASSAM.

The election of Professor GEORGE DANCER THANE was announced.

A number of rubbings taken from door-posts and window frames in New Zealand were exhibited, and a letter on the subject from Professor Max Müller was read, upon which the Chairman and Mr. A. L. Lewis made some remarks.

The following Note, communicated to Dr. E. B. Tylor by Mr. L. E. Peal, of Sibsagor, Assam, was read by the Assistant Secretary :—

NOTE *on* PLATFORM-DWELLINGS *in* ASSAM.

By S. E. PEAL, Esq.

[WITH PLATES II AND III.]

A SHORT note in "Nature," No. 572, of October 14, *re* the connection of Swiss châlets and pile platform-dwellings of the Lakes, induces me to send you a few little sketches of the pile platform-houses seen here, among the hill tribes of and around Assam to the north, east, and south.

I lately made enquiry especially as to why they built on piles, and the only answer was, "the land was so uneven." This, however, is a mistake, inasmuch as they *do* build thus on *level* land, and never entirely without piles.

It is noteworthy that all hill races, as far as I see, except the Khasias, build thus; and the people from the hills, or races who have settled in the plains for two hundred, or even for five or six hundred years, keep to the custom. On the other hand, Aryans and semi-Aryans do not use piled dwellings hereabouts.

Fig. 1, Plate II, is an exact copy of a sketch of the Bor Muthun, skull house or morang. The centre line of posts projects through the ridge, a custom of some tribes only, and these posts are covered like the roof with toku palm leaf, or with another palm called jengo. The posts project so as to enable them to be lowered as the part in the ground decays. The roof comes so far down as to hide the walls of matted split bamboo, of which also the platform and floor are made; these are supported by cross pieces borne on saplings, posts, and bamboo uprights. Houses from 30 to 200 feet long, and from 20 to 35 feet wide, are often built part on the ground and part raised, with fire-places built up of stones. A notched log serves as a ladder, to get on the platform or visitor's end; and in some tribes, I hear, the log is inverted if visitors are not desired, equivalent to the "Darwaza Band" of Bengal. In no case are the platform posts in water, for all the changs or villages are perched on hill tops.

In fig. 1 the skulls of those taken in raids or by surprise are first exposed on stakes, and then when clean put in the frame seen in the front of the house.

Part of the platform is under a curved roof at the end of the house roof, and this is no doubt made so here to protect visitors from rain. They often sit out on it, and here, too, they dry grain, flesh, fish, &c., so as to be out of the reach of the pigs and goats, so generally kept by all races having the platform-houses.

In fig. 2 is seen the extreme to which they at times go—in building over steep slopes—and the length of the houses of their headmen. This house is 200 feet long.

Fig. 1, Plate III, is from a sketch from nature, of Kamti houses at Jusa or "Bor Phakial," a Kamti village on Diking river, above Jaipur, East Assam, the people of which are Budhists, and of Shan origin. The ends you will observe have the curved part much developed, and under it the women weave and make pottery. As a rule, the Kamti houses are on level land and above all water. They keep pigs and goats underneath, the floor being 4 to 5 feet high.

Fig. 2 represents the Singphu houses, where the house-roof extends over and beyond the platform, and in this space cattle are tied or enclosed at night.

Fig. 3 shows the Miri houses, in lines also or rows, near river banks, north and north-east of Assam. The platforms are raised some 3 feet, and partly covered by the house-roof. In some, the platform projects very little, and like figs. 1 and 2 these houses are in the plains, but at times the land is flooded by the rivers overflowing. These people also keep pigs and goats underneath.

Fig. 4 illustrates the manner in which the Deodhains build houses on piles. The platform also is not large, and is under the end of roof; they are lineal descendants of the Ahoms, and speak and write Ahom. A few hundred alone remain, and on the banks of or near the Disang river, Sibsagor, I hear their houses are like those of the Aitonias, near Golaghat.

I cannot say if the Bhutias, Lepchas, or Nipalis have platforms on piles, nor yet so far the Abors or Daflas.

If it turns out that all these semi-savage non-Aryan hill races north-east and south-east of Bengal are the remains of the pre-Aryan inhabitants of the Gangetic basin, the Osurs and Demons of the Hindus, it is likely that pile platform-dwellings were common all over India at one time, as was Jhuming.

Explanation of Plates II and III.

Fac-similes reduced by photography from the author's pen-and-ink sketches, illustrating various forms of platform-dwellings in Assam.

PLATE II.

Fig. 1. Skull-house and Morang of the Bor Muthuns, Nogas (Nagas), South-East Assam.

Fig. 2. The long building, with projecting posts, is the house of Joboka, Noga Raja.

PLATE III.

Fig. 1. Pile-houses of Kamtis, in the plains of Eastern Assam.

Fig. 2. Singphu pile-houses, Eastern Assam.

Fig. 3. Pile-houses of the Miris, containing several related families and a burial place. Plains of Northern and Eastern Assam, near rivers.

Fig. 4. Small pile-houses of the Deodhains and Aitonias, in Assam.

DISCUSSION.

Colonel-GODWIN-AUSTEN said: I do not think there is any connection between lake dwellings and the building of houses on piles or platform-dwellings, of which Mr. Peal has given us a description. I think it far more likely that in the East they are the result of a people exposed to a damp climate, and one where the rains are excessive, and having the presence of bamboos and other material on the spot ready for their construction. In a hilly country a level floor is thus more easily obtained. The custom extends through the Dafla and Akha hills: westward it is confined to the Bhutias in the plains, who in the interior build fine houses of mud or stone, to the Mechis at the base of the Darjiling Hills, who are the most western race who do so, and they are closely allied to the Garos. The platform-houses of the Daflas are very long, and are inhabited by fifty to eighty men, women, and children.

There are two notable exceptions in the Anghami and Kutcha Nagas, and the Khasis, who all build with the floor of the house on the ground; but even some of the Khasi villages on the slopes and base of the hills, where the climate is exceedingly wet, build their houses raised above the ground.

Mr. KEANE remarked that there were few more interesting ethnological fields than Assam, which for ages had been the common battle-field of the Aryan and Mongoloid races. Hence a special value attached to all such accurate information regarding the habits and customs of the inhabitants of this region as had been supplied

by the paper just read. At the same time he could not attach so much importance as many ethnologists seemed to do to such a feature as that of pile dwellings. Nor could he agree with the author's suggestion that this custom was peculiar to the non-Aryan races. It arose chiefly from such natural causes as humidity of the soil, and the necessity of providing a refuge against wild beasts or hostile tribes. Hence wherever these conditions existed the practice was found to prevail from the remotest time, and altogether independently of racial affinities. When we remembered the prehistoric pile dwellings of the Swiss lakes, besides those not only of Assam but also of Camboja, Borneo, New Guinea, and many other widely separated regions, it seemed impossible to associate the custom with any questions of ethnical differences or affinities.

The following paper was read by the author, and illustrated by the exhibition of a large number of objects of ethnological interest brought by Colonel Woodthorpe from the Naga Hills:—

NOTES *on the* WILD TRIBES INHABITING THE SO-CALLED NAGA HILLS, *on our* NORTH-EAST FRONTIER OF INDIA. Part I.

By Lieutenant-Colonel R. G. WOODTHORPE, R.E.

[WITH PLATES IV AND V.]

IN the limits of the necessarily short paper which I have the honour of reading to you to-night, it will be impossible to do much more than allude in the briefest way to the distinguishing and peculiar characteristics of the very many diverse tribes who inhabit the so-called Naga Hills on our north-east frontier of India. I do not intend to theorise to any great extent concerning the origin of these tribes. I leave this to abler and better-informed men than I am, my object being simply to assist them in forming their conclusions by stating what I know to be facts concerning the Nagas.

In the very interesting field of research afforded by the Naga Hills, I followed in the footsteps of Colonel Godwin-Austen, and I am fully sensible of the loss which science sustained by that officer's retirement from the field, and cannot but feel how much more valuable would have been the results of our operations in those hills had Colonel Godwin-Austen remained to conduct them to the end.

The Naga tribes inhabit the hills south-east of Assam, dividing that province from the north-west portion of the Burmese territory, and their country may be said roughly to lie between the parallels of 25° and 28° north latitude, and 93° and



FIG. 2.



FIG. 1.

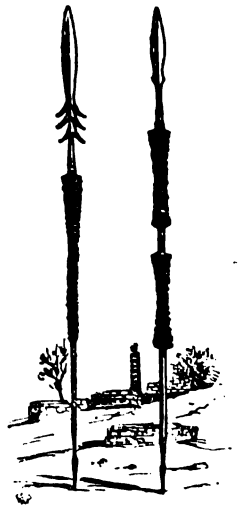


FIG. 3.

MALE AND FEMALE ANGAMI NAGAS.

97° east longitude. Various derivations have been given for the name *Naga*, some supposing it to come from the Bengali word *Nangta*, in Hindustani "*Nanga*" = "naked." Others think that the *Kachari* word *Nàgà* = a young man = a warrior, supplies the name; while others again derive it from "*Nàg*" = "a snake." Not one of these derivations is satisfactory, nor does it really concern us much to know more about it, seeing that the name is quite foreign to and unrecognised by the *Nagas* themselves. They have no generic term for the whole race, nor even for each of the various tribes constituting this race. A *Naga* when asked who he is, generally replies that he is of such and such a village, though sometimes a specific name is given to a group of villages. In the old maps of Assam the Naga Hills immediately bordering the plains are shown as divided into districts, the names of which as given on the maps were supposed to be the tribal names of the inhabitants of those districts. Such is, however, not the case. When the Assam Rajahs held sway over these hills, they exacted tribute from the Nagas, and for convenience in collecting this, the villages were divided into districts, or in the vernacular "*Duars*," and names were arbitrarily given to these districts by the Rajahs; hence we find such names on the maps, unknown by the Nagas generally, as "*Dup-duar-ias*," "*Pani-duar-ias*," "*Hatigorias*," &c. Assamese names were also given to each village. The men who go down into the plains and come much into contact with the Assamese are aware of these names, and answer to them, and even describe themselves by these Assamese names to a foreigner visiting them, but that is only because they think he will thereby understand better all about them. In the Burmese invasions of the Naga Hills many villages were looted and burned. These have been since rebuilt, and new names given to them, the old ones also being frequently retained.

It will be unnecessary to refer at any length to the history of our relations with the Nagas, extending now over 50 years, which have been "one long sickening story of open insults and defiance, bold outrages and cold-blooded murders on the one side, and long suffering forbearance, forgiveness, concession, and unlooked for favours on the other," as the late Captain John Butler, Political Agent on the Naga Hills, remarks in his able and interesting paper on the Angami Nagas, published in the "Journal of the Asiatic Society of Bengal," Part 1, 1875. Suffice it to say that in consequence of the raids continually made by the Nagas on our territory, it was found necessary to locate a Political Officer at a place called Samaguting, just in the hills, and when Captain Butler succeeded to this appointment, being of active and energetic habits of mind and body, and not content to know his

district from hearsay only, he organised a series of expeditions, commencing in the cold weather of 1870–71, and carrying them on till his death in 1876. That these expeditions should be made as useful as possible he applied for and obtained the services of a survey party to accompany him, and to his efforts to assist us, and to his own researches, we owe a great deal of our information, geographical, ethnological, &c.

Although the home of so many diverse tribes, the character of the country is much the same throughout, and it may be described as a succession of long parallel ridges, the general direction being north-east and south-west, divided from each other by streams or rivers of greater or less importance, the hill ranges increasing in height from the low ranges bordering the plains, above which they do not rise much more than 2,000 feet, till we reach the lofty chain of peaks overlooking *Burmah*, which at *Saramethi* and other points attains a height of nearly 13,000 feet above the sea. All these ranges are very narrow along the ridges, with steep well-wooded slopes, the lower hills being covered with long grass jungle. The valleys of the rivers near the plains in the Sibsagor district are low, flat, and densely covered with large forest trees, among which the mighty rubber is conspicuous.

In former times these rivers were worked for gold by the Assamese, but the precious metal was not found in sufficient quantities to pay for the working. In the interior the valleys get narrower, and in many cases the rivers flow through deep gorges. The country is densely populated and a very large portion of the hill sides is under cultivation, till we approach the Singphu territory, on the extreme south-east limit of the Assam plains, when the villages become fewer and fewer and the hills present a more unbroken mass of dark green. From the higher peaks in the Angami country as many as seventy large villages can be counted at a time lying dotted about on the ranges of hills below, and magnificent panoramic views are to be obtained.

Speaking generally, the Nagas may be divided into two great sections, viz.: (1) the kilted, (2) the non-kilted. The first class embraces all the so-called Angamis, eastern and western. The second class includes all the other tribes, for though all these latter differ from each other in many minor particulars, yet there is a very general resemblance, but the Angami differs most markedly from all the other tribes in every way, appearance, dress, architecture, mode of cultivating, &c., and in nothing is the difference so marked as in the waist cloth, which I shall describe further on. This marks the Angami off from all the other tribes on either side of the Brahmaputra, and I am

inclined to think that, whatever the origin of the other Naga tribes, whether they are aborigines or immigrants from elsewhere, they are older settlers than the Angamis, whose origin, however, has yet to be satisfactorily settled.

The average height of the Angamis is 5 feet 9 inches (some attaining a height of 6 feet) and they are well and powerfully built, the leg muscles being especially well developed. Their features are small and cheek bones high. Their complexion comprises various shades of rich brown, but is seldom very dark. Their hair is cut short or shaved (with the exception of one long tuft from the crown) in youth or before marriage; in adolescence it is left about 3 inches long and brushed down all round, resembling the fashion in the middle ages. The long tuft is left at the back, and is generally worn tied in a knot (a chignon) bound round with long rolls of snow-white cotton wool. When a man marries it is the custom in some villages for him to part his hair in the middle and brush it up in front. This is not an invariable custom, but every village almost differs from its neighbours in some slight detail of dress or decoration.

The kilt, the principal distinguishing article of dress of the Angamis (Plate IV, fig. 1), is a strip of dark blue or black cotton cloth from $3\frac{1}{2}$ to $4\frac{1}{2}$ feet long, and 18 inches wide. It passes round the hips overlapping in front, and is usually fastened on the left side: the lower inner corner is drawn tightly between the legs by means of a string which passes up behind and hangs over the waistbelt. An occasional hitch is given to the string when the garment appears to be coming loose, and every requirement of decency is satisfied. When a man becomes a warrior and has taken heads, he acquires the right to decorate his kilt with three rows of cowries; and in the case of a very distinguished warrior, with four rows. The men of the Mao group of villages towards Manipur, however, wear cowries irrespective of any deeds of valour. Thrown loosely over the shoulder are worn from two to three cotton or bark homespun cloths, of dark blue, with a double border of bright scarlet and yellow stripes, or white with a border of blue and red stripes. On the war-path, these cloths are worn, one across the breast and knotted over the shoulders, the other bound round the waist: the folds of the latter they use as pockets. When going out to fight, the warriors often wear a large wreath or coronet of long bears' hair, which gives them a very formidable appearance, and from the back of this, or inserted in their chignons, spring three or five tall feathers, rising from small wooden stems covered with red hair, in which they fit so loosely that the feathers revolve with any movement or breath of air. For very conspicuous bravery the right is conferred to wear in

their headdress the long tail feathers, white with a broad band of black, of one of the many kinds of the large birds called hornbills, that inhabit the dense forest of the Burail Mountains.

The *chief ornament* for the *ear* is a very handsome one. It consists of a rosette or flower about 1½ inches in diameter, the centre being a couple of emerald beetles' wings surrounded with a circle of long shiny white seeds, the whole enclosed in a fringe of short red hair. The flower is formed on a cup and stem of wood, and from the cup a long streamer of red hair falls to the shoulders. The stem passes through the lobe of the ear into a boars' tusk ornamented with red and yellow cane work. The ear is also pierced in several places to receive huge bunches of cotton wool or brass rings. Bunches of blue jay feathers form another very pretty ear ornament. Necklaces of cornelian (long hexagonal shaped pieces) and coloured glass beads, and a peculiar dull yellow stone, decorate their throats; and in the nape of the neck is invariably worn a large white conch shell, shaped so as to lie flat, and suspended by a thick collar of dark-blue cotton threads. Another ornament worn sometimes as a necklace, and sometimes as a scarf, is formed of an oblong piece of wood 8 inches by 4, covered with alternate rows of white seeds and black and red hair, and fringed all round with long red hair; this is suspended from the shoulder by a cotton rope ornamented with cowries and long tufts of black and red hair. In most Naga ornaments the black hair is human hair taken from scalps of foes, and the scarlet is goats' hair dyed.

Armlets made of single slices of elephants' tusks, 2 inches wide, and small bands of coloured cane work, are frequently worn above the elbow. I need hardly remark that all Nagas' personal decorations have a defensive purpose in view, like our old military stocks and epaulettes, and are planned to ward off the spear or axe, while the long hair which is so profusely used, waving about with every movement of the wearer, distracts the eye of the foe levelling his spear at him, and disturbs the aim. *Leggings* are made of red and yellow cane work, and follow somewhat the shape of the leg, fitting tightly at the ankle and below the knee, and swelling into a globe at the calf. These are frequently worked on the leg, and are left there till they wear out, which is generally in about three months. Some are made with a slit at the side which enables them to be removed at pleasure. When these leggings are not worn, bands of finely-cut cane, dyed black, are twisted tightly round the leg just below the knee.

The women (Plate IV, fig. 2), like the men, are on the average taller than the women of most hill races, and are com-

paratively fair, with a ruddy glow of health in their cheeks. They are well made and active, and frequently very pretty when young, but their hard life soon proves fatal to good looks. They do not go in quite so much as the male sex for personal adornment. As Captain Butler remarks: "This is a noticeable instance of the female withdrawing from the contests wherever she finds a male rival in the same field of indulgence in and love of personal decoration," which with them shows itself chiefly in a large number of necklaces of all sorts and sizes, from large pieces of shell (three or four to a necklace) to those of the smallest glass beads. One or two large brass rings hang from their ears. When very young and unmarried, the girls' heads are shaved entirely; when married, the hair grows long and is braided and tied in a knot at the back, or is allowed to fall in waves all round, confined only by a small fillet of cane.

The *women's dress* consists of a small blue or black petticoat, a strip of cloth about 2 feet in breadth, passing round the hips and overlapping about 6 inches. The next most important article of clothing is a broadcloth, whose opposite corners are taken up and knotted over the shoulders, covering the back and bosom (as with the Khasia women), another large cloth being worn shawlwise. This latter is usually dispensed with or wrapped round the hips when at work. In cold weather an extra cloth is added, and in warm weather, when at work in the fields, they strip to the wrist. All the weaving, a good deal of the work in the field, such as preparing the soil, &c., carrying wood, and pounding rice, is done by the women. In fact, women's rights are fully recognised, the men doing very little besides drinking and fighting.

The principal weapons of offence among the Angamis—indeed, the only indigenous ones—are spears; although some of the more powerful villages, such as Khanomah, Mezumah, &c., have managed to supply themselves with several stands of firearms.

The heads of the *spears* (Plate IV, fig. 3) are of iron and vary slightly in shape and size. The shafts vary in length from 4 to 5½ feet, and are very picturesquely ornamented with black and red hair. In some cases a space is left bare for the hand, this gives the spear the appearance of a mediæval tilting lance: sometimes the shaft is worked all over with a beautiful pattern of yellow and red cane. The spear shaft is always tipped with an iron spike used for sticking it into the ground. A Naga would never dream of leaving his spear leaning against a wall. It is always stuck upright in the ground, or suspended inside the house to keep it perfectly straight.

On the war-path every Angami carries two of these spears: one to be thrown, the other to be used at close quarters.

The *dâo* is a broad-headed kind of hand-bill or hatchet, with a heavy blade 18 inches in length, and only edged on one side. This dâo is invariably worn at the back of the waist in a rough sort of half scabbard, made of wood. Their *shields* (Plate IV, fig. 1) are very large, between 5 and 6 feet high, about 2 feet broad at the top, and tapering down to 1 foot at the bottom. They are made of bamboo matting, and covered on the front with the skins of bear, tiger, deer, &c., or a piece of cloth, generally scarlet. The front of the shield is further decorated with pieces of bearskin, cut so as to represent human heads. These represent the heads of men slain in battle by the warrior behind the shield, and are supposed to intimidate the foe who looks on them. From each corner of the upper end of the shield spring two long cane horns from 2½ to 3 feet in length, decorated with long tresses of hair, black and scarlet, and from the centre of the shield rises a tall scarlet plume tipped at the top with white. Along the top of the shield runs a fringe of white downy feathers, and along the rear edge is fastened a string of black, blue, and white feathers. The shield is suspended by a rope from the shoulder, and is controlled by a small cane handle, and rendered spear-proof by a thin plank fastened inside, and running nearly its whole length. When proceeding on a foray, they carry with them bundles of "*panjies*," long thin blades of bamboo hardened in the fire, which they stick in the ground as they rapidly retreat to retard pursuit.

The only *agricultural implements* they use are the dâo above described, an axe common to almost all the tribes on this frontier, notable for its small size, and a light hoe with an exceedingly crooked handle. The handle of this hoe is from 18 inches to 2 feet long, and the blade from 6 inches to 1 foot long. All the Angamis cultivate by terracing their fields, a custom which distinguishes the Angami's fields at a glance from all their neighbours. These terraces are constructed with wonderful care and skill in the valleys and on the hill sides, ascending the latter for upwards of 1,000 feet, each little field having its own retaining wall of stone 5 or 6 feet high. Water is brought round for long distances in channels, cut with beautiful accuracy, seeming, from a distance, to run round the hill sides, deep ravines being bridged by means of aqueducts ingeniously constructed of hollowed-out trees with a perfectly level course; but on closer inspection they are found to have just enough slope to keep the water flowing. From these any field can be irrigated at will. The soil in the terraced fields is manured, and the rice is sown in March, transplanted in June, and reaped in October. Cultivation on the natural slope of the

hill is also carried on. Besides rice of several sorts, the Nagas generally, not Angamis alone, grow a coarse kind of pea and several varieties of small grain, and various kinds of yams, chillies, ginger, garlic, pumpkins, and other vegetables, as well as cotton, which is restricted to the lower ranges.

The Nagas generally breed cows, pigs, goats, dogs, and fowls, for purposes of food as well as for sale and barter.

Roast dog is considered a great delicacy. Indeed, Nagas will eat anything, not excepting an elephant which had been three days buried. Notwithstanding this, they do not drink milk, holding it in great abhorrence, and tinned lobster they said smelt too much.

The Angami villages are almost always large ones, Kohimah, the largest, containing 900 houses. Many streets contain 400 or 500 houses, smaller villages being generally young offshoots from the others. The villages are all built on commanding positions, and owing to the almost constant state of war, most of them are very strongly fortified. Stiff stockades, deep ditches, bristling with panjies, and massive stone walls often loopholed for musketry, are their usual defences. In war time the hill sides are scarped and thickly studded over with panjies. These panjies vary in length from 6 inches to 3 or 4 feet, and give very nasty wounds. Deep pit-falls, artfully concealed by a light layer of earth and leaves, line the path by which the enemy is expected. The entrances to the villages are through long narrow tortuous lanes, with high banks of stone and earth on either side, tangled creepers and small trees meeting overhead, preventing an escalade, and admitting only of the passage of one man at a time. These lanes lead up to gates, or rather doorways closed by strong, thick, and heavy wooden doors made out of one piece of wood. The doors are fastened from the inside, and admit of being easily barricaded. These doors are protected very often by raised look-outs on which, whenever the clan is at feud, a watch is kept up day and night. The approach to these look-outs is a notched pole from 15 to 20 feet high. Deep lanes and stone breast-works divide off the clans, of which there are frequently from two to eight in a village; small bridges of planks and logs of wood keeping open communications in times of peace, and being withdrawn on declaration of war. When an attack is imminent the roads are often planted thickly with tall strong pegs, which are easily threaded when walking quietly, but are an effectual protection against a sudden rush.

The *roads* in the higher hills are constructed with considerable skill, the more precipitous slopes being turned with easy gradients, instead of the road or path being taken up and down

the faces of the slopes, no matter how steep, as is the case with many of the hill tribes.

The *houses* (Plate V, fig. 1) are lofty commodious dwellings resting on the ground, which is roughly levelled. They are generally placed in irregular lines facing inwards, and are constructed after a pattern I saw nowhere else. These houses have high gable ends, the eaves coming almost to the ground on either side as a precaution against high winds. The gable in front is, in the houses of men of wealth and position, decorated with broad handsome weather-boards terminating above the ridge in a pair of ornamental horns. The ridge of the roof slopes to the rear somewhat, so that though the front gable is often 15 or 20 feet high, the rear gable is only 10 or 15 feet high, and sometimes even less in proportion. In width the houses vary from 20 to 40 feet, and in length from 30 to 60 feet. The front wall is constructed of huge planks often as much as 4 feet broad, each whittled out of a single tree. They are often covered with huge bas-reliefs of metua heads and horns. The roof is thatched with grass or palm leaves, and projects in front some 8 or 10 feet; under the shelter thus afforded cattle pens are constructed, and bamboo baskets are tied up under the eaves to give shelter to the poultry. In many villages each house is surrounded by a stone wall, marking off an enclosure in which the cattle are tethered at night. Pigstyes occupy a corner of this enclosure. The house itself is divided off into two or three compartments. In the front room the grain is stored away in huge baskets, made of bamboo, from 5 to 10 feet high, and about 5 feet in diameter. In the inner room is a large mud hearth, and around it are placed thick broad planks for sitting and sleeping upon, and the small back room of all generally contains the liquor tub, the most important piece of furniture in the house in the Nagas' estimation. In this they brew their *Dzu*, a kind of fermented beer made of rice and other ingredients composed of wild herbs. This is an exceedingly toothsome beverage, and at certain times when fresh and well brewed has a refreshing effervescence. The Western Angami Naga never smokes or uses opium, but he is never seen without a large bamboo or horn mug in one hand filled with *Dzu*, from which he takes continual sips, either through a reed or with a bamboo spoon. Men, women, and children all drink this *Dzu* from morn till night, and they were always ready to share the contents of their cups with us; and after a long and hot climb up hill, to take a short rest in the shadow of the house and a pull at their flagon was never unpleasant. Most of the Angamis eat their food with bamboo spoons out of wooden bowls furnished with four little feet, forming at once table and



FIG. 1.



FIG. 2.

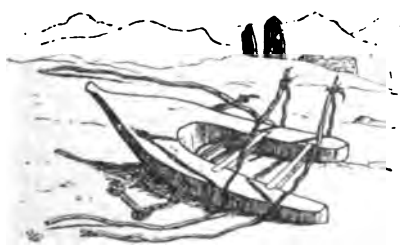


FIG. 3.

HOUSE, SEPULCHRAL EFFIGY AND SLEDGE OF THE ANGAMI NAGAS.

plate, into which the good woman of the house poured each person's portion of the meal. In all villages are large sloping platforms, one end resting on the ground, the other elevated and commanding a view of the surrounding country. These are used as look-outs, and in them in the evening the men all assemble to drink and talk.

Inside the villages, and also lining the approaches to them, are the *graves* of departed families—large platforms of earth and stones, the latter being used for retaining walls and squared with great accuracy. These tombs vary in size, and may be either square or round; above these are erected carved wooden effigies of the deceased (Plate V, fig. 2). Sometimes these are executed with much skill; two we saw at Kohimah, having the wrists and elbow-joints indicated, with emerald beetle's wings as eyes, and a row of white seeds for teeth. They were clad in all the garments of the deceased with their shields fixed on the left side, two imitation bamboo spears standing on the right, as it is not safe to leave the real spears there. In some cases the image consists simply of a wooden post with a rudely carved bust of the deceased at the top, two or three rows of heads in slight relief beneath, proclaiming the number of foemen slaughtered in life. A curious circumstance connected with these figures is that, though in life the large conch shell is always worn on the back, in these effigies it is as invariably carved on the breast. No reason could be assigned by the Nagas for this.

Very noticeable objects among these hills are the long rows of huge *monoliths*, which are either monumental or simply commemorative of some big feast given by a rich man; these stones are often of great size, and are dragged up into place on wooden sledges shaped like the prow of a boat, the keel curving upwards (Plate V, fig. 3). On to this sledge the stone is levered, and carefully lashed with canes and creepers, and to this the men, sometimes to the number of several hundreds, attach themselves in a long line, and putting rollers beneath the sledge, they pull it along until it has been brought to the spot where the stone is to be erected. Here a small hole is dug, and the sledge being tilted up on end, the lastings are cut adrift, and the stone slides into position: some leaves are then placed on the top, and some liquor poured on them; this done, a general feast follows, and the ceremony is complete.

These remarks on the Western Angamis apply to their brethren of the higher hills, known as Eastern Angamis. The latter are, as a rule, a finer race of men, and of fairer complexion, pink cheeks being very frequently seen among the youth of both sexes. The men keep their hair cut quite short and square over the brows, a long thin tuft being left behind. They

wear the kilt and a rather pretty waistbelt, formed of from six to eight ropes of white cotton, all connected at the back with some black and red binding, but tied separately in front, the ends being decorated with some black and scarlet binding.

The houses of these people are rather larger than those of the more western villages, and more decorated with external carvings. The construction is, however, exactly similar. The front boards are ornamented with various devices in black maroon and white, concentric circles being the favourite design.

At Razami, Thetcholumi, &c., the fronts of the houses are almost covered with a number of dolls about a foot long, of wood or clay, dressed as Angami men and women, and suspended by the armpits. Imitation spears and shields, corresponding to the size of the dolls, are interspersed among them, and also rows of small clay cows.

At Razami the houses are many of them roofed with shingles, often of a very large size.

The Eastern Angami dâo is of peculiar shape; it has a large square blade, and is double edged, the handle being attached to the centre of the blade.

At one village called Ungomah we came across some men who, though apparently Angamis in feature, build, architecture, and mode of cultivating, yet wore the dress of, and spoke a dialect identical with the Sehmahs, a neighbouring non-kilted tribe.

The heads of enemies taken in battle or murder are fixed by spikes to the tops of long poles planted in rows along the pathway just outside the village.

The Angamis struck us as a very cheerful, frank, hospitable, brave race, and for hill people wonderfully clean. When we arrived in camp, near a village (I speak of 1873-75), the men all turned out at once to build our huts, clear spaces for our tents, &c., and in the evening, as the setting sun was gilding the hill tops and the highest houses in the village, we sitting round our camp fire in the open fields, on the hill side below, looking across a deep valley, in which the purple gloom of evening was gathering, would hear the hum of many voices above us, and looking up would see the men of the village in long unbroken line descending the hill side path, bringing rice, wood, &c., and shouting in wonderful unison their peculiar "hau hau," a cry with which they invariably accompany labour or exertion of any kind. At intervals the men are hidden, and all sound subdued, as they descend into a ravine, or pass through a small belt of jungle: now they emerge again with a fresh swell of what is almost music, and at length leaving the jungle, they enter the camp and come on without halt or break

in the procession, each man throwing his load down before us in one spot, and passing on till a large circle is formed around us, and every man has rid him of his burden, the cries being kept up the whole time. Then the circle revolves rapidly around us, the best *pas de seul* dancers quitting it in turn to perform a small war dance: the pace and the cries quicken rapidly, till at length the circle suddenly stops, and the whole give vent to a prolonged deep organ-like note gradually dying away, to be succeeded by another rather lower, at the end of which, without further word of command, they all turn and disappear towards the village.

Bloodthirsty, treacherous, and revengeful all Nagas, even the best are, and the Angami, though in many ways perhaps the finest and best of these tribes, is no exception: with them as with the others it is an article of faith that blood once shed can never be expiated, except by the death of the murderer or some of his near relatives, and though years may pass away vengeance will assuredly be taken some day. One marked peculiarity in their intestine feuds is that we so often find a village divided against itself, one clan being at deadly feud with another, whilst a third lives between them in a state of neutrality, and at perfect peace with both. Once, in passing from one village to another at war with it, a young man came as guide. I asked him if he was not afraid to go to the hostile village, but he said he was originally a native of that village, but had married a girl in the one we had just left, and lived there, and in consequence he was a neutral, and could pass backwards and forwards between the two belligerent villages without harm from either. "The blood feud of the Naga, as with the Corsican 'vendetta,' is a thing to be handed down from generation to generation, an everlasting and baneful heirloom involving in its relentless course the brutal murders of helpless old men and women, innocent young girls and children, until, as often happens, mere family quarrels, generally about land or water, being taken up by their respective clansmen, break out into bitter civil wars which devastate whole villages."—(Captain Butler). I remember once, on our return to camp after a long day's work on the neighbouring hills, a young man, who was our guide, as we approached his village half hidden in the dusk and mist, began to dance and shout and level his spear at every bush, with yells of defiance. On my asking the meaning of this strange conduct, he explained that he knew that a man from another village was on his trail to kill him for some injury, and it was more than possible that he might be behind any of these bushes. My guide, therefore, thought it a wise precaution to take it for granted that his enemy was there, and by shouts and a defiant attitude to intimidate

him. My friend added, "Seeing that I am prepared for him, and that I know all about it, he will slink away in the dark."

The Angamis, as indeed the Nagas in general, have no settled form of government. They are nominally under the orders of the headmen of their respective villages, who are chosen for their wealth, bravery, skill in diplomacy, powers of oratory, &c., but virtually every man does that which is right in his own eyes, and is a law unto himself, "a form of democracy" which, as Captain Butler remarks, "it is difficult to conceive as existing for a single day, and yet that it does exist here is an undeniable fact. The orders of the headmen are obeyed so far only as they may happen to be in accord with the wishes of the community at large, and even then the minority will not hold themselves bound in any way by the wishes and acts of the majority. The Naga headman is simply *primus inter pares*, and often that only *pro tem.*" Theoretically, with the Angami every man is his own master, and avenges his own quarrel.

"Marriage and divorce are among the simplest of their rites, and often follow each other within the year without comment or surprise. Incompatibility of temper is here quite sufficient for either the man or woman to demand a divorce and take it. Although strictly monogamous, both sexes may marry and re-marry as often as they please; such offspring as require the maternal aid follow the mother, and are tended and cared by her until able to look after themselves, when they return to their father. Men may not only marry their deceased wife's sisters, but they may likewise marry their brothers' widows. On the other hand cousins are forbidden to intermarry. Parents may advise, but never attempt positively to control the choice of their sons and daughters. Marriage is usually solemnised by a large feast, and the bridegroom, when he can afford it, makes a present to the bride's parents. Divorce necessitates a division of all property held in common, such as grain, household furniture, &c., and all property derived since the two became man and wife. In any division thus made the late wife or *divorcée* gets one-third, whilst the man gets the remainder, and the woman then returns to her parents or lives apart in a separate house until she marries again. On the death of the father, all property, excepting the house, is divided equally among all the sons alone, the youngest always receiving the house in addition to his share of the whole. Neither the widow nor daughters have any claim to aught, except their clothes and ornaments, but they are generally supported by their sons or brothers until death or marriage."—(Captain Butler.)

The Nagas in general have very vague ideas of religion or of a future state. Many never think at all about either; probably

others again among the Angamis believe that if they have acted up to their received standard of a good life, and have abstained from eating flesh, after death their spirits would fly away into the realms above, and become stars. Others among the non-kilted tribes, Lieutenant Holcombe tells us, "believe that in heaven they will have cultivation, houses, and work; the poor will be better off they think: a rajah will remain as such in a future state, and although they have a name for God, they do not seem to worship a supreme being." The custom, the universal custom, of decorating graves or tombs with the deceased's wearing apparel and weapons, also with drinking vessels, &c., would seem to prove that there is among all the tribes an underlying current of conscious or unconscious belief in a future state. Certain it is that their belief in the existence after death of the freed spirit is not uncommon, if not general. Captain Butler mentions seeing a grave by the roadside several miles away from any village, and on enquiry found that it had been purposely placed there half-way between the village in which the deceased had been born and that in which he had passed the latter portion of his life, and where he had died. This was done to enable his spirit to revisit either.

Whatever may be their belief in a god or a future state, it is certain that they believe in an infinity of evil spirits or demons. Each disease is supposed to be in the immediate keeping of some particular demon, who travels about dealing out sickness and death at his caprice, and to propitiate these many demons is their care. They seem to have no good or beneficent spirits. A custom arising from this belief in demons is analogous to the ceremony of striking the lintel and door-posts with blood observed by the Children of Israel. Passing through some villages which had never before been visited by Europeans, nor, indeed, by any but born Nagas, I noticed in the lintel of the door of each house a small bunch of withered leaves, and was told that they had been placed there as soon as the villagers had tidings of our approach, the object of these leaves being to prevent any demons of evil who might accompany the strangers from entering the doors so protected.

The Nagas would frequently try to mislead us as to our road, by planting small branches in the path by which they did not wish us to travel, hoping that we should think that it was a disused one. Captain Butler told me one day that he had seen a few twigs and leaves stuck here and there along a path leading to a village. He asked the meaning of it, and was told that the demon of small-pox had visited another village near, and might wish to go to that village also, but if he came upon the twigs he would say, "Dear me! I thought there was a village

path here, but this is all jungle, I must try for another road." The Nagas never gave us credit for an intelligence superior to that of their devils. Captain Butler also tells of a chief whose favourite son died of a fever contracted while on a shooting excursion. This chief, in full war costume, rushed out to the spot, commenced his war cry, and hurled defiance at the deity who had struck down his son, bidding him come out and show himself, imperiously cursing him for not replying to the challenge. Omens are consulted on all occasions of importance, and determine the cause of conduct of the enquirers.

I remember once, just after Captain Butler's death, when we were again advancing into the hills, coming across the evidences of an intended ambuscade; little spaces had been cleared in the tall grass on either side of the path, sufficient to allow of a man crouching in each of them, and each was provided with a small heap of stones. Here the oracle had been consulted by cutting little chips from a piece of wood and noticing how they fell. On that occasion the oracles were not favourable to hostilities, and we were unmolested.

On another occasion we had gone about three miles from a village which had received us as we passed in an apparently friendly spirit, when our rear guard was suddenly attacked by a large number of Nagas who had come up from the village through the jungly ravines behind us. I had on looking back seen them descending from the village, but as they had concealed their arms under their clothes, I thought they were going into their fields. They had probably hoped to have cut off the coolies, but the latter were going well, and the Nagas having a steep climb through the tangled grass, only managed to come up with the rear guard. To have allowed this to pass would have been to raise the whole country against us, so (as I had succeeded to the chief political charge on Captain Butler's death, and had had the advantage of his experience and example on several similar occasions) I requested Colonel Tulloch, who commanded my escort, to leave a large guard with our coolies to form camp in a convenient spot, while we pursued the Nagas back to their village. As they had no firearms we only took 20 men with us, and the Nagas making a very slight show of resistance when they found the tables turned on them, we were soon in possession of their village. At various parts of the road, outside their gates, where we had noticed some Nagas very busy as soon as they saw we were making for the village, we found portions of a puppy which had been killed, cut up, and buried. This ceremony was supposed to give them immunity from our bullets, and secure their village from destruction. Among other means I may mention that one is to throttle a fowl, and

observe how its legs lie when dead; if the right lies over the left, the omen is favourable, and the reverse if otherwise. Certain birds' songs when heard on the right of a path are lucky; unlucky when heard on the left of the path. They have several ways of taking an oath. The commonest and most sacred is for the two parties to the oath to lay hold of a dog or fowl, one by its head the other by its tail or feet, whilst the animal or bird is cut in two with a dâo, emblematic of the perjurer's fate. A ceremony of submission after defeat, and offer of peace, is to take a handful of earth and grass, and after placing it on the head to put it on the edge of a dâo, and chew it between the lips, "one of the most literal and disagreeable renderings of the metaphorical term 'eating dirt.'"

Among the Angamis a description of "Tabu" is very much in vogue. It is declared on every occasion; on the birth of a child, or death of one of a family, the house is tabued for five days, and no one is allowed to go in or out, except the inmates of the house. An accidental death or fire in a village places the whole village under the tabu. Before commencing agricultural operations an universal tabu is gone through, and on many other similar occasions the tabu is declared.

Captain Butler mentions the following instances of their expressive manner of emphasising messages. I quote his words: "I remember a challenge being conveyed by means of a piece of charred wood, a chilli, and a bullet tied together. This declaration of war was handed on from village to village, until it reached the one for which it was intended, where it was no sooner read than it was at once despatched to me by a special messenger, who in turn brought with him a spear, a cloth, a fowl, and some eggs, the latter articles signifying their subordination and friendship to me, at whose hands they now begged for protection. It is, perhaps, scarcely necessary for me to explain that the piece of burnt wood signified the nature of the punishment threatened (*i.e.*, a village consigned to flames), the bullet descriptive of the kind of weapon with which the foe was coming armed, and the chilli the smarting, stinging, and general painful nature of the punishment. And one day a piece of wood, with a twisted bark collar at one end and a rope at the other, used for tying up dogs on the line of march, was brought to me with another prayer for protection. The explanation in this case is of course obvious, viz.: that a dog's treatment was in store for the unfortunate recipients of this truculent message. Two sticks, crosswise, a fresh cut bough, or a handful of grass across a path, declares it to be closed."

I may add that these customs are not confined to the Angamis or, indeed, to the Nagas generally, but are common among all

the tribes on the north-east frontier, of whom I have long experience.

So far, except where I have especially stated that all Nagas were included in the remarks, I have been dealing with the so-called Angamis or kilted Nagas only. The non-kilted Nagas I must deal with in the second part of the paper.

Explanation of Plates IV and V.

Copies of the author's sketches reduced by photography from photozincographs executed at the Surveyor-General's Office, Calcutta.

PLATE IV.

Fig. 1. Angami Naga of Chedema.
Fig. 2. Angami woman of Khonoma.
Fig. 3. Angami Naga spears.

PLATE V.

Fig. 1. Angami house in Kohimah.
Fig. 2. Effigy on Angami Naga grave.
Fig. 3. Sledge used by the Angami Nagas for dragging large stones.

DISCUSSION.

Colonel H. GODWIN-AUSTEN made the following remarks:—Colonel Woodthorpe in the opening portion of his paper referred to my services when in charge of the Khasi and Naga Hills survey operations, and I have to thank him for the kind terms in which he alluded to my services in those hills. I must say that I left the survey with great regret, and only wish that I could have done more; but that jungle country is not one where a European can work for many years with impunity, and after seven years of jungle work on that frontier, I considered it best to leave before my health, which suffered much, was entirely undermined. There is no country more interesting to work in than the Naga Hills, of which Colonel Woodthorpe has given us so interesting an account this evening; the scenery is most beautiful under the Burrail range, and the people are the most interesting on the Indian frontier. Colonel Woodthorpe saw more of them and the country than any other officer, and I can testify to the accuracy of his observations. With regard to the burial customs of the people, about which Miss Buckland has asked a question, I only once had an opportunity of seeing any part of such ceremonies. In passing through a Naga village near Asalu, I saw the grave of a man being made close to the door of a house, and the wife of the deceased was standing in

it, and digging the same, and at intervals singing in a loud mournful way. It is the common custom to bury in the village street, and I have often seen the neatly-made fresh-raised graves covered over with an open work of interlaced split bamboos. On the occasion above mentioned, a "Mittun"[1] of the domestic breed had been sacrificed for the funeral feast, and it lay close by, having been speared through the heart, and the tail had also been cut off at the same time. Those who die of small-pox, which is a terrible scourge at times, are not buried in the villages.

Mr. KEANE regarded Col. Woodthorpe's able and richly illustrated paper as perhaps the most valuable contribution yet made towards the study of the so-called Naga tribes. Many statements, such especially as those relating to their agricultural practices, and the remarkable skill displayed by them in the irrigation of their upland valleys, would be received with surprise by those who had hitherto looked on these interesting tribes as occupying a very low position in the social scale. As much uncertainty still prevailed respecting their affinities to the surrounding Aryan and Mongolian races, he would be glad if the author could supply some more definite details as to their physical appearance and the structure of their dialects. The Angami, who differed in so many respects from the other Naga tribes, are said to speak a distinct language quite unintelligible to them, and he would like to know whether this was the case. Information was much needed regarding the peculiar character of all these idioms, and it would be important to ascertain whether they were monosyllabic like the neighbouring Indo-Chinese, or polysyllabic like the Sanskritic vernacular current in the Assam lowlands. With regard to the physical type, the points to determine were the colour of the hair and complexion, the shape of the eyes and nose, prominence of the cheek bones, form of the head, whether dolichocephalic or brachycephalic, and mean stature. Until such leading features as these had been fixed, the problem of their true relations with the surrounding races could not be settled.

Sir JOHN LUBBOCK, Col. KEATING, Dr. WHITE, and the CHAIRMAN also joined in the discussion.

Colonel WOODTHORPE, replying to Mr. Keane, said that the hair of the Angamis is generally straight, but sometimes wavy; never, as far as he knew, "frizzly" naturally. Captain Butler says they "frizz" it out occasionally in front, but in this the barber's art is employed. The Angamis differ greatly among themselves in features, some possessing aquiline features, others being flat faced. They all have their eyes set slightly, but very slightly, obliquely. He did not see any funeral ceremonies.

[1] Wild cow (*Bibos frontalis*).

MARCH 22ND, 1881.

F. W. RUDLER, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Pueblo Pottery. By F. W. Putnam.
—— Remarks on the Afghâns found along the route of the Tal Chotiali Field Force in the spring of 1879, Parts 1 and 2. By Lieut. R. C. Temple.
From the GEOGRAPHICAL SOCIETY OF LISBON.—Explorações Geologicas e Mineiras nas Colonias Portuguezas. By Lourenço Malheiro.
—— Moçambique. By Joaquim José Machado.
From the SPANISH SOCIETY OF ANTHROPOLOGY AND ETHNOLOGY.—Museo Antropologico, No. 1.
From the INSTITUTE.—Institut Géographique International. Bulletin No. 2.
From the SOCIETY.—Bulletin de la Société Impérialo Russe de Géographie. Vol. XVII, 1er. fascicule.
—— Journal of the Asiatic Society of Bengal, Vol. XLIX, Nos. 236, 237.
—— Proceedings of the Asiatic Society of Bengal. November, December, 1880; January, 1881.
—— Journal of the Society of Arts, NOS. 1477, 1478.
From the EPPING FOREST AND COUNTY OF ESSEX NATURALISTS' FIELD CLUB.—Inaugural Address, 1880.
—— Transactions, Parts 1-3.
From the ACADEMY.—Processen-Verbaal van de gewone Vergaderingen der Koninklijke Akademie van Wetenschappen te Amsterdam, 1879-80. Jaarboek voor 1879. Verslagen en Mededeelingen. Af. Natuurkunde, Deel XV.
From the EDITOR.—"Nature," NOS. 593, 594.
—— Revue Scientifique, Nos. 11, 12.
—— Matériaux pour l'histoire de l'homme, T. XII, 3me. liv.

The election of GEORGE B. WATERHOUSE, Esq., was announced.

Mr. R. W. Felkin exhibited a series of photographs of Scenes and Natives of Central Africa, taken by Herr Buchta.

Professor W. H. Flower, LL.D., F.R.S., exhibited a number of monumental heads and artificially deformed skulls from Mallicollo, and read the following paper:—

On a COLLECTION *of* MONUMENTAL HEADS *and* ARTIFICIALLY DEFORMED CRANIA *from the* ISLAND *of* MALLICOLLO, *in the* NEW HEBRIDES.

By WILLIAM HENRY FLOWER, LL.D., F.R.S., P.Z.S., V.P. Anthrop. Inst., &c.

(WITH PLATE VI).

THE strange form of the heads of the natives of Mallicollo attracted the attention of the earliest Europeans who had opportunities of making observations upon them—Captain Cook and the two Forsters, who accompanied him in his visit to the island in 1774. In J. R. Forster's account of the voyage, we read that: "In Mallicollo we observed that the greater part of the skulls of the inhabitants had a very singular conformation; for the forehead from the beginning of the nose, together with the rest of the head, was much depressed and declining backwards, which causes an appearance in the looks and countenances of the natives similar to those of monkeys. Whether the inhabitants use some art to give the heads of their children this figure, or whether it be owing to some other cause, or to an original defect of the whole generation, which in the first couple from whence the tribe descended was modelled by chance or art into that form, and afterwards became inherent and natural to their offspring, it is impossible to determine."[1]

As a corollary to this, the observation of G. Forster may be quoted: "They were the most intelligent people we had ever met with in the South Seas; they understood our signs and gestures as if they had been long acquainted with them, and in a few minutes taught us a great number of words. Thus what they wanted in personal attraction they made up in acuteness of understanding." Captain Cook himself bore striking testimony to their honesty as compared with that of other natives of the South Sea Islands.

The first accurate observations upon crania of these people are those of Mr. Busk, published in the Journal of this Institute (Vol. VI, p. 200), founded upon collections made by the late Commander Goodenough, R.N., and Mr. A. Corrie. These abundantly confirmed the description of the general form of the head given by those who had only seen the Mallicollese alive, though not quite clearing up the question raised by the elder Forster as to the mode of production of the deformity.

A series of sixteen skulls, every one of which is said to bear more or less clearly traces of artificial deformation, in the Godef-

[1] "Observations made during a Voyage round the World," 1778, p. 267.

froy Museum in Hamburg, has since been described by Dr. R. Krause.[1]

As throwing further light upon this subject, which has a peculiar interest, because heads deformed in the same manner as those of the Mallicollese have not been met with in any other of the numerous islands of the Pacific, I have the pleasure of exhibiting to the Institute a collection of skulls and preserved heads, which has lately been formed by Mr. Boyd, and for the possession of which the Museum of the Royal College of Surgeons is indebted to the liberality of the late President, Mr. Luther Holden, who signalised his term of office by the great interest he took in, and the handsome contributions he made to, the Anthropological series of the Museum.

In answer to some inquiries which I addressed to him through his agent in London, Mr. Charles Thorpe, Mr. Boyd has been good enough to send the following information regarding these specimens, which I believe contains the first direct evidence as to the artificial production of the deformity, for most visitors to the island, like Captain Goodenough and Mr. Corrie, have succeeded in obtaining but scant glimpses of the domestic life of these people, the women and children being carefully kept out of the way of strangers.

Mr. Boyd writes: "The heads were obtained on the south coast of the island of Mallicollo, New Hebrides, it being only in that neighbourhood that the natives alter the natural form of the head. The ordinary skulls were simply taken from the graves, and belonged to the common people, boys and women. The skulls made to imitate the defunct men belonged to warriors and chiefs, and were obtained from the large 'Bure' or temple, one of which is in every town, and into which boys and women are not allowed to enter on pain of death. On the death of a warrior or chief he is buried, and when the flesh has rotted from the bones they are dug up, and used for making the points of arrows, which are then poisoned. An image or figure of split bamboo is then made to represent as much as possible the deceased. It is hollow and plastered with clay, carved wood being used to represent arms, legs, &c.; the head is then smeared over with clay, &c., also, and modelled and painted, so as to be often a very fair likeness of the dead; it is then put on the model, and the whole set up in the god's house or temple, with the weapons and small personal effects of the defunct. These images are, I think, worshipped. It is difficult to obtain

[1] "Ueber macrocephale Schädel von den Neu Hebriden." Verhandlungen in Hamburg des Vereins für naturwissenschaftl. Unterhaltung, IV Band, 1879; and "Ethnographisch-Anthropologische Abtheilung des Museum Godeffroy, in Hamburg," 1881.

these skulls; none but the direct descendants of the dead will interfere with them.

"With regard to the peculiar formation of the skull, it is the effect of pressure at a very early age. All the people on the south coast practice it, men and women alike. Shortly after the child is born the mother binds the forehead with 'sinnet,' from the eyebrows, until the hair is reached, the string passing round the back of the head, and it is only taken off occasionally until the child is six months or even a year old. The poor child is in pain from morning until night, and is continually crying. The eyes protrude greatly.

"These notes are correct as far as they go, and are the result of personal inquiry and observation."

The skulls collected in Mallicollo by Mr. Boyd are eleven in number. Five are prepared or monumental heads; the other six are clean skulls, three with and three without the lower jaw, and appear to contain examples of both sexes, and are all adult, except the one which exhibits the most marked deformity, No. 1161 L of the MS. Catalogue, in which the basilar suture has not closed, and the last molars are not in place. The monumental heads apparently all belong to males, thus far corroborating Mr. Boyd's statement that chiefs and warriors only are treated in this way. Apart from their essential race characters, which I do not propose to discuss at present, though I may say that they agree in all essentials with those previously described by Mr. Busk and by myself in the published catalogue of the crania in the Museum, they present two points of interest—

1. The artificial deformation. Of this every one bears evidence, and in each case of the same type, *i.e.*, circular constriction. They are consequently in the main symmetrical, and have no lateral bulging of the parietes. Two points on the upper surface show most marked evidence of depression, the middle of the frontal bone and the neighbourhood of the bregma; and between these there is a more or less marked median elevation of the upper and hinder part of the frontal. The constricting bands have evidently passed round the occiput behind, upwards and forwards, and have divided superiorly, so as to produce the double depression on the upper contour of the skull. This is one of the commonest forms of artificial deformity among ancient South American crania, and also those of Southern Europe, the old macrocephalic skulls from Tiflis, the Crimea, Austria, &c., being all modifications of this type; the differences in detail depending mainly upon accidental circumstances, as the tightness of the bandages used, period of time during which they were continued, &c. A distinction can, however, be made in describing such

skulls, in relation to whether the elongated axis is nearly horizontal, or whether, being elevated behind, it approaches more or less to the vertical; whether the whole cranium has, in fact, the aspect of being depressed or elevated. The former is the prevailing form among the Mallicollese crania. But one of them, No. 1161 L (*see* figure), differs strikingly from the rest in the elevation of the back of the skull and in the great amount of the constriction, the general form closely resembling some of the Titicaca skulls, as well as those from Tiflis,[1] and from Csongrád, in Hungary, described by Lenhossek.



ARTIFICIALLY DEFORMED CRANIUM FROM MALLICOLLO, NO. 1161 L, IN THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Though this cranium differs so much from the rest that its genuineness might at first sight be suspected, a careful examination of the others will show some which form a transition towards it, especially No. 1161 K, and there can be no difficulty

[1] As No. 565 Mus. Roy. Coll. Surg., presented by Captain J. B. Telfer, R.N., and described and figured in the "Journal of the Anthropological Institute," vol. iv., p. 57, plate iv.

whatever in supposing that the method of bandaging which produced the one might, in the hands of a parent a little more solicitous than usual about the child's personal appearance, produce the other. The general character of the skull, as well as its history, fully attests its authenticity. It has evidently been the object of some care and preparation after death, showing signs of having been subjected to the action of fire.

2. The mode of preparing the monumental heads, as they may be called, is well shown in five specimens, though it is quite possible that any of the others may have been subjected to the same process, and the effects removed by exposure and decay. In fact, in one of the five the composition has almost entirely peeled off, and in two others the hair has been lost. These imperfect specimens are useful, as showing the steps of the process by which the result in the more perfect cases has been attained.

It is quite evident that, as stated by Mr. Boyd, the skull is first allowed to become clean, probably by temporary burial, though not to the extent of permitting the teeth to fall out. Although resembling them at first sight, these heads are not mummies, the skin and soft parts being entirely removed. The face, up to the top of the forehead, is covered with a thick layer of composition, which in general appearance much resembles clay, as stated by Mr. Boyd, but which on closer examination proves to be formed of short dark brown, probably pounded, vegetable fibres, rendered adherent by the mixture of some gummy substance, or perhaps a little clay. When dry, it readily crumbles, resembling fine peat. It breaks down when wetted, but it is quite insoluble in water. It burns slowly, without flame or resinous exudation, leaving a considerable residuum of grey ash. In this substance, which completely covers the bones of the face, the features are modelled. These consist of projecting brow-ridges, a large nose, lips with a wide aperture, somewhat apart so as to show the teeth; and even the auricle or pinna of the ear is rudely imitated. The eyes are represented by deep oval (or, in one case, circular), holes. Whether any artificial imitation of the eye (as in the Solomon and Darnly Islanders, and others, who are in the habit of preparing mummified heads) had been inserted, and now fallen out, it is impossible to say, but in none is there any sign of this having been the case. The nose is large and prominent in all, with a straight or slightly arched dorsum and wide nostrils. Its form differs somewhat in each case, though with a general character common to all.

The surface of the composition is smooth and of a uniform dark reddish-brown colour, almost black. In one, 1161 A,

(Plate VI, figs. 3 and 4), it has been painted a light ferruginous red, with a broad black stripe, passing from each eye backwards and downwards below the ear on to the neck. In another a black band is faintly discernible across the forehead. The composition is carried upwards and backwards as far as the line which marks the growth of the hair of the scalp. Beyond this in the two more perfectly preserved heads, frizzly black hair, at first sight closely resembling that of the natural head, covers the skull, but it has evidently been restored artificially after the bone was clean and bare, for it does not grow out of the skin. In the specimen, No. 1161 A (Plate VI, figs. 3 and 4), locks and tufts of finely curled hair seem to have been merely gummed to the surface of the bone; but No. 1161 B (figs. 1 and 2) presents an example of a much higher style of art. The whole covering of the scalp, which presents the closest resemblance to the natural hair *in situ*, can be removed bodily (figs. 1 and 2). It is in fact a wig! The basis to which the hair is fastened is most ingeniously formed of a thin layer of leaves, merely gummed together, with a smooth interior exactly fitting the skull, which when the covering is removed is perfectly bare and clean. A slender twig passes round the lower part of the wig to give it support, for as may be supposed this really beautiful and elegant specimen of wig-making is extremely fragile and delicate and will not bear removing and replacing many times without risk of injury.

It is probable that one at least of the others had been treated in the same way, as shown by the cleanness of the calvarium, but the remainder show signs of having had the hair fastened directly to the skull as in the first described specimen.

In the forepart of both the heads which retain the hair a plume of cock's hackles is fixed, by means of long sharp thorns, like skewers, passing through the composition which forms the upper part of the artificial forehead; and in No. 1161 A (fig. 4), in addition to this, a pendant tassel, 18 inches in length, formed of four pieces of native string, with interwoven feathers, hangs down from the right side of the head.

The bone at the base of the skull is not injured, as in the preserved Maori heads, but appears to have been subjected to the action of fire and smoke, probably in drying the composition with which the face is covered. As the brain would have disappeared with the other soft parts by natural decomposition when the head was buried, there would be no necessity for enlarging the aperture at the base to facilitate its removal. None of the cervical vertebræ are preserved with the heads. The first described, No 1161 A (figs. 3 and 4), has a rather long and slender cylindrical neck, formed externally of the same

composition as that of which the face is made, and stuffed with coarse vegetable fibres, probably cocoanut, and ending inferiorly in a broken surface, by which it was probably continued into the artificial body described by Mr. Boyd. There is no reason to suppose that the others were not finished off in the same way, but when removed by force, the separation took place close to the skull, instead of at the bottom of the neck.

The method of preserving relics of departed friends, of which these specimens give evidence is, as far as I know, unique. Whatever the special motive among the Mallicollese, whether they are objects of worship or merely of affectionate regard, it must be very difficult for a passing traveller without intimate knowledge of the language and of the condition of mind and thought of the people to ascertain; but the custom is obviously analogous to many others which have prevailed throughout all historical times and in many nations, manifesting itself among other forms in the mummified bodies of the ancient Egyptians, and which has received its most æsthetic expresssion in the marble busts placed over the mouldering bones in a Christian cathedral.

Explanation of Plate VI.

Figs. 1 and 2.—Side and front views of monumental head from Mallicollo, No. 1161 B, in the Museum of the Royal College of Surgeons of England, with artificial removable wig of hair, lined with leaves.

Figs. 3 and 4.—Side and front views of head, No. 1151 A, in the same Collection, with hair fixed to the surface of the cranium.

Mr. JOSEPH LUCAS, F.G.S., read the first part of a paper "On the Ethnological bearings of the terms Gypsy, Zingaro, Rom, &c."

APRIL 12TH, 1881.

F. W. RUDLER, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Anthropology. By E. B. Tylor, D.C.L. F.R.S.,
—— Ancient Bronze Implements, Weapons, and Ornaments of Great Britain and Ireland. By John Evans, D.C.L., F.R.S.

From the AUTHOR.—Notes on the Crania of New England Indians. By Lucien Carr.
—— A Study of the Savage Weapons at the Centennial Exhibition, Philadelphia, 1876.
—— On the Geology and Physical Features of the Bagshot District. By Prof. T. Rupert Jones, F.R.S.
From the ACADEMY.—Boletin de la Academia Nacional de Ciencias de la Republica Argentina, Tom. III.
From the ASSOCIATION.—Transactions of the National Association for the Promotion of Social Science, Edinburgh Meeting, 1880.
From the INSTITUTION.—Journal and Report of the Royal Institution of Cornwall, March, 1881.
From the German ANTHROPOLOGICAL SOCIETY.—Correspondenz-Blatt, No. 3, 1881.
From the SOCIETY.—Transactions of the Imperial Society of Naturalists, Moscow. Tom. XXXIII, liv. 1; Tom. XXXV, p. 1, liv. 3; Tom. XXXVIII, liv. 3; T. XXXIX, lvi. 2.
—— Journal of the Society of Arts, Nos. 1479–1481.
—— Proceedings of the Royal Society, Nos. 210.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Bund. X, Nos. 8, 9.
—— Journal of the Asiatic Society of Bengal, No. 238.
—— Proceedings of the Royal Geographical Society, April, 1881.
—— Bulletin de la Société de Borda à Dax, 1881, Part 1.
—— Transactions of the Asiatic Society of Japan, Vol. IX, Part 1.
From the EDITOR.—The Kansas City Review of Science and Industry, Vol. IV, No. 2.
—— Revue Internationale, 1881, No. 3.
—— Revue Scientifique, Nos. 13–15.
—— Journal of Mental Science, No. 81.
—— "Nature," Nos. 595–597.

The election of Lieut.-Col. R. G. WOODTHORPE, R.E., and of THOMAS VINCENT HOLMES, Esq., F.G.S., was announced.

Mr. JOSEPH LUCAS, F.G.S., read a paper "On the Ethnological Relations of the Gypsies."

A discussion ensued in which M. Bertin, Mr. Walhouse, Mr. Bouverie-Pusey, and the Chairman took part, and the author replied.

NOTES *on the* WESTERN REGIONS. Translated from the "Tsëën Han Shoo," Book 96, Part 2. By A. WYLIE, Esq.

[*Introductory Note by H. H. Howorth, Esq., F.S.A.*

I WISH to prefix a note of explanation to this most valuable paper, probably the last which my accomplished friend Mr. Wylie will be able to write, since his eyes, which have done so much good service in Chinese research, have at last been overshadowed with blindness. The series of papers is now complete, and in them ethnologists in the West of Europe have for the first time presented to them the earliest details contained in Chinese literature about the tribes and peoples neighbouring upon China. Hyacinthe, I believe, published a translation of these annals into Russian; but in that language they are virtually as much buried as in the original language. The period covered by them is that comprised within the domination of the Elder Han dynasty in China (207 B.C. to 9 A.D.) It is to be hoped that they may be followed at some time by a similar gleaning from the annals of the Second or After Han dynasty. This, the last paper of the series, has not had the advantage of Mr. Wylie's complete supervision in passing through the press,[1] and if any printer's or other mistakes occur, they must be assigned to myself, who have corrected the proofs, and who will never cease to be grateful for having been the secondary means of furnishing so much of the raw material for Eastern ethnological research to English students, by persuading Mr. Wylie to undertake the translation.]

Woo-sun.[2]

THE Sovereign of Woo-sun, who is styled the Great Kwăn-me, has his seat of government in the city of Ch'ih-kuh, distant from Chang-gan 8,900 *le*. The kingdom contains 120,000 families, comprising a population of 630,000 persons.[3] They have an army of 188,800, a Minister of Emoluments, a Left Generalissimo, a Right Generalissimo, three Marquises, a Commander-in-chief, a Protector General, two Inspectors General, a grand official, two household officials, and a Knight. The seat of the Governor General lies 1,721 *le* to the east. The country of Fan-

[1] A revise was afterwards submitted to, and corrected by, Mr. Wylie. [Ed.]

[2] From the "Se yĭh t'ung wăn che" we learn—and the indications in the text seem to point to the conclusion—that Woo-sun occupied the site of Kulja, and great part of the modern province of Ili, lying to the east of Lake Issikul.

[3] A native commentator remarks:—"The people of Woo-sun had the most remarkable figures of all the barbarian races. Their representatives at the present day have blue eyes and red beards; while in shape they resemble apes from which they are originally descended."

nuy[1] in Kang-keu (Sogdiana) lies 5,000 *le* to the west. On the jungly plains there is much rain and cold. On the hills pine and fir trees abound. The inhabitants do not cultivate the soil, but they plant trees. They roam about with their flocks and herds in search of water and pasture, their national customs being the same as those of the Heung-noo. Horses are very numerous, some wealthy people having as many as four or five thousand. The people are pig-headed, covetous as wolves, and utterly unreliable. They are much given to plundering raids, and are characteristically violent as a nation.

Formerly they were subject to the Heung-noo, but subsequently, on attaining to great prosperity, they cast off their allegiance. The country joins that of the Heung-noo on the east, Kang-keu on the north-west, Ta-wan (Fergana) on the west, and several settled kingdoms possessing cities and villages on the south. The inhabitants were originally Sae (Sacæ); but the Ta Yuĕ-she (Massagetœ) on the west subdued and expelled the King of the Sae; when the latter moving south, crossed the Hindu Kush; and the Ta Yuĕ-she occupied the country.

At a subsequent period the Kwăn-mo of Woo-sun attacked and subdued the Ta Yuĕ-she, who then went westward, and reduced the Ta-hea (Dahæ) to a state of vassalage, while the Kwăn-mo of Woo-sun took possession of their country. In consequence of these revolutions, the population was of a mixed character, containing, besides those of Woo-sun, Sae and Ta-Yuĕ-she elements also.

On his return from his expedition to the West, Chang Keen had said in his report:—"The Woo-sun nation was originally settled, together with the Ta Yuĕ-she, between Tun-hwang and China. Now, although Woo-sun has become a great and powerful nation, yet by liberal gifts they might be induced to move eastward and occupy their old country. By bestowing an Imperial Princess in marriage on the Kwăn-mo, a fraternal bond might be formed, which might act as an effectual check on the Heung-noo." These details are found in the Memoir of Chang Keen.[2]

Woo-te, being at that time the reigning Sovereign, approved Chang Kĕĕn's suggestions, and entrusted him with the commission to transact the negotiation, furnishing him with presents of gold and silks for the Kwăn-mo. On the arrival of the envoy, the Kwăn-mo received him with the rites proper to an envoy

[1] *Fan-nuy* is literally "inside the border," and thus the sentence might be read:—"The border land of Kang-keu lies 5,000 *le* to the west." I prefer, however, using Fan-nuy as the proper name of the country, the meaning being equivalent.

[2] *See* the "Journal of the Anthropological Institute," August 1880, p. 66.

from the Heung-noo. Chang Këĕn, who was greatly mortified by this reception, said:—"I am the bearer of gifts from the Emperor; but should your Majesty refuse the customary salutation, I must take them back again." At sight of the gifts, the Kwăn-mo rendered due obeisance, and the other rites were performed the same as of old.

At first the Kwăn-mo had more than ten sons, the middle one of which, the Ta-luh, was of a violent disposition, and having the talents for a general, he put himself at the head of over 10,000 cavalry, and set up a separate establishment. The Ta-luh's elder brother, the heir apparent, had a son called the Tsin-tsow. The heir apparent dying early had on his death-bed requested the Kwăn-mo that the Tsin-tsow might be made heir apparent, a request which the Kwăn-mo in his grief assented to. The Ta-luh was enraged, and gaining over his brothers to his views, while relying on his host of followers, he rebelled, and resolved to attack the Tsin-tsow. Consequent on this, the Kwăn-mo gave the Tsin-tsow also more than 10,000 cavalry, and set him up in a separate establishment. The Kwăn-mo also raised more than 10,000 cavalry for his own protection. The country was thus divided into three factions, and the Kwăn-mo's freedom of action was restrained by the magnates.

On delivering the presents to the Kwăn-mo, Chang Këĕn addressed him to the following effect:—"There is nothing to prevent the Woo-sun nation removing to their original country in the east; in which case the Emperor of China would send an Imperial Princess for your consort. A fraternal bond might thus be cemented, which would prove an effectual barrier to molestation from the Heung-noo." The Woo-sun, however, being at a great distance from China, they were altogether unconscious of the magnitude and power of the empire; while being in close proximity to the Heung-noo, to whom they had long been subject, the high ministers were all unwilling to remove. The Kwăn-mo himself being old, and the kingdom divided, he felt utterly inadequate to exercise a sovereign control. He sent an envoy, however, to escort Chang Këĕn home; and took occasion at the same time to forward an offering of some tens of horses as an acknowledgment of favours. The Woo-sun envoy carried back a glowing account of the numbers, wealth, and magnificence of the Chinese, after which they made much more account of China.

The Heung-noo, hearing of their intercourse with China, were bent on attacking them. Furthermore, when the Han sent an envoy to Woo-sun, the envoy passed southward to Ta-wan and the Yuĕ-she, forming a perpetual alliance with these nations. In

view of these various events, the authorities of Woo-sun took the alarm, and on the strength of Chang Këĕn's proposals, despatched an envoy with an offering of horses, wishing to obtain an Imperial Princess in marriage, and thus effect a fraternal bond. The Emperor laid the matter before his Ministers, who after consultation assented to the request, and replied:—"It is necessary first to transmit the marriage gifts, after which the lady will be forwarded." Woo-sun thereupon sent a thousand horses as a marriage gift to the Han monarch.

In the *Yuen-fung* period (B.C. 110–105), Se-keun, the daughter of Këĕn, the King of Keang-too, was sent as the Imperial Princess destined to be the bride. Carriages and an imperial outfit were conferred upon the lady, with a retinue of officers, subordinate officials, servants and attendants, several hundreds in all, and a most costly array of presents. The Kwăn-mo made her lady of the right. The Heung-noo also sent a maiden to the Kwăn-mo for a bride, and he made her lady of the left.

On reaching her destined home, the Princess had a palace built for her. Once or twice during the year, she and the Kwăn-mo gave a feast, on which occasions she presented silks to the kings and accompanying nobles. The Kwăn-mo being old, however, and his speech unintelligible, the Princess becoming dejected and melancholy composed the following ballad respecting herself:—

"My parents they have wed me,
All helpless and undone,
In a distant alien kingdom,
To the Monarch of Woo-sun.

"My dwelling's vast and dreary,
Deck'd with felt in place of silk;
My daily food is flesh meat,
Accompanied with milk.

"My mind with thoughts is burden'd,
My heart with grief oppress'd;
Would that I were a yellow stork,
I'd fly back to my nest."

On hearing of the lady's sad condition the Emperor was touched with compassion; and every second year sent an envoy, bearing presents of embroidered hangings and decorations.

In view of his great age, the Kwăn-mo wished to give the young Princess in marriage to his grandson the Tsin-tsow. She would not listen to the proposal, however, but forwarded a letter to the Emperor stating her case. The latter desiring so far to conciliate Woo-sun that he might be able by its assist-

ance to crush the Heung-noo, recommended the Princess to comply with the customs of the country. The marriage with the Tsin-tsow was accordingly consummated. On the death of the Kwăn-mo, the Tsin-tsow succeeded to the throne. *Tsin-tsow* was an official title. His name was Keun-seu-me. *Kwăn-mo* was the royal title borne by his father, whose real name was La-keaou-me. Subsequently the title was written *Kwăn-me.*

After the marriage of the Princess of Keang-too with the Tsin-tsow, she gave birth to a daughter named Shaou-foo. On the death of the Princess subsequently, the Emperor again sent Keae-yew, the grand-daughter of Woo, the King of Tsoo, as an Imperial Princess, to be the Tsin-tsow's bride. The death of the Tsin-tsow took place while Ne-me, his son by his Heung-noo consort, was still a child; and Ung-kwei-me, the son of the Tsin-tsow's uncle, the Ta-luh, was put on the throne, with the understanding that when Ne-me was of age the dignity should revert to him.

Ung-kwei-me assumed power with the style of the *Lusty King*, and again took to wife the widowed Tsoo princess; by whom he had three sons and two daughters. The eldest son was named Yuen-kwei-me; the second, Wan-nëen, became King of Sha-keu (Yarkand); and the third named Ta-lo, was made Left Generalissimo. The eldest daughter Te-she was married to Keang-pin the King of Kwei-tsze, while her sister Soo-kwang was married to the Heĭh-how of Jo-hoo.

In the time of the Emperor Chaou-te (B.C. 86–74), the Princess forwarded a despatch to Court, saying that the Heung-noo had sent cavalry, who were encamped in the Keu-sze country. The two nations were banded together to invade Woo-sun; and the time was propitious for China to interfere for the deliverance of the latter. While the Chinese in reply to this appeal were training troops and horses, having determined to make an attack on the Heung-noo, the arrangements were arrested by the death of the Emperor.

On the accession of Seuen-te (B.C. 73), the Princess and Kwăn-me sent an envoy with a despatch to the following effect:—"The Heung-noo have sent a continuous incursion of troops for the invasion of Woo-sun, and have taken the country of Keu-yen-go-sze, where they have carried off the inhabitants. They have also sent an envoy, desiring Woo-sun without delay to deliver up the Chinese Princess, and cut off all intercourse with the Han. Now the Kwăn-me is ready to send the half of his subjects, being the choicest troops in the country, and will himself furnish 50,000 horsemen, straining every nerve in an attack on the Heung-noo. Will the Emperor send an army

to save the Princess and the Kwăn-me?" Upon this China raised a great levy of 150,000 cavalry, under five generals, who started simultaneously on an expedition by five different roads; the details regarding which are given in the "History of the Heung-noo."[1]

The Deputy Protector Chang Hwuy was sent with a token of credence to cover the Woo-sun troops. The Kwăn-me took command in person of the Heĭh-hows and subordinate officials, with a corps of 50,000 cavalry. Advancing from the west, he came upon the Court of the Right Luh-le prince, where he captured the paternal relatives of the Shen-yu, the sister-in-law and her companions, famous princes, Le-han, Protector General, colonels, cavalry generals and subordinates, in all 40,000 prisoners, and over 700,000 horses, oxen, sheep, mules, and sumpter camels. The Woo-sun party returned with their captives and booty; and Chang Hwuy was promoted to be Marquis of Chang-lo. These events took place in the year B.C. 71.

Chang Hwuy was sent with presents of gold and silks to those of the Woo-sun nobles and others, who had distinguished themselves by their military prowess.

In the year B.C. 64, the Kwăn-me of Woo-sun forwarded a letter to the throne through Chang Hwuy to the following effect:—"Desiring that the imperial grandson Yuen-kwei-me should continue the succession, it is my wish that by an alliance with an Imperial Princess, the bond of relationship should be strengthened afresh, and thus our connection with the Heung-noo be completely cut off. I wish to send a thousand horses and the same number of mules as a marriage present." This letter was handed over by the Emperor to the dukes and high ministers for deliberation. The Grand Director of Ceremonies, Seaou Wang-che, remarked that Woo-sun was in a region so extremely remote, that in case of rebellion it would be difficult to preserve it. He though it inexpedient on this occasion to offer one of the Imperial ladies. The objection, however, was overruled by the Emperor, who extolled Woo-sun for the great military prestige it had established in the recent campaign. He also laid much stress on conforming to precedent.

An envoy was accordingly despatched to Woo-sun to receive the bethrothal presents. The Kwăn-me, the heir apparent, the Right and Left Generalissimos, and the Protector General all sent envoys to China, a retinue of more than 300 persons, to receive the young lady. The Emperor selected Seang-foo, the

[1] *See* the "Journal of the Anthropological Institute of Great Britain and Ireland," vol. iii, No. 3, pp. 445–447.

daughter of the Woo-sun Princess, Keae-yew's younger brother, to be the Imperial Princess; and appointed officials, attendants, and coachmen, more than a hundred persons, who were all placed in the Academic Institute to learn the Woo-sun language. The festive gathering preparatory to departure was graced by the Imperial presence. The Heung-noo envoy and the princes of foreign states were present; while the chief actor superintended the valedictory music. The banqueting-house magnate Chang Hwuy, Marquis of Chang-lo, was sent as convoy. Four commissioners holding tokens of credence were appointed to accompany the young lady as far as Tun-hwang. Before they had crossed the boundary, the news reached them that Ung-kwei-me, the Kwăn-me of Woo-sun, was dead (B.C. 60), and that the Woo-sun nobles, according to the original agreement, had unanimously appointed the Tsin-tsow's grandson Ne-me to be the new Kwăn-me, with the style of the *Mad King*. On receipt of this news Chang Hwuy forwarded a despatch to Court, expressing a desire to leave the young lady at Tun-hwang for a time, while he rode forward to Woo-sun, to reproach them for not setting Yuen-kwei-me on the vacant throne; after which he would return to meet the young lady. The matter was referred to the council of dukes and high ministers. Seaou Wang-che again expressed his views that Woo-sun was acting a double part, and that it was difficult to maintain a treaty with them. "It is now," he observed, "more than forty years since the first Imperial Princess went to Woo-sun; but the favours and blessings conferred have not been effectual in cementing the confidence of close relationship; nor have we secured peace on the border lands. These are matters of clear evidence. Now as Yuen-kwei-me has not been set on the throne, should the young lady return home, it will be no breach of faith towards the barbarians, and it will undoubtedly be for the welfare of China. Not only is the young lady a costly contribution to our state policy, but this is a turning point in our future prosperity." The Emperor accepted these suggestions, and recalled the young lady.

The Mad King again took to wife the Tsoo Princess Keae-yew, by whom he had a son named Che-me; but he did not live on amicable terms with the lady. Being cruel and tyrannical, he also lost the attachment of the people. The Han sent the Equestrian Master of the Guard, Wei Ho-e, and the Assistant, Marquis Jin Ch'ang, to escort home the hostage Prince; when the Imperial Princess took occasion to inform the envoys that the Mad King was a perfect scourge to the people of Woo-sun, and that it would be easy to assassinate him. A plot was then concerted, in accordance with which an entertainment was given, at the close of

which one of the soldiers of the envoys drew his sword and struck at the tyrant. Missing aim, however, the sword glanced down his side, merely wounding the Mad King, who then took to horse and galloped off. His son Sze-ch'in-chow assembled the troops, and surrounded Wei Ho-e, Jin Ch'ang, and the Imperial Princess, in the city of Chĭh-kuh. There they were detained for several months; till Ch'ing Keĭh, the Governor General, raised troops from the allied states, came to their rescue, and carried them off. The Chinese sent the Inner Gentleman Usher and General Chang Tsun with medical appliances for the cure of the Mad King; carrying also a gift of twenty pounds weight of gold, and various coloured silks. Wei Ho-e and Jin Ch'ang were chained together, and conveyed to Chang-gan in the criminal van, where they were decapitated. The Chariot Cavalry General and Chief Historiographer Chang Ung remained to take evidence in the case of the Princess's complicity in the plot of the envoys to take the Mad King's life. The Princess refusing to submit or apologise, Chang Ung seized her by the head and reviled her. The Princess reported the matter in a letter to the Emperor; and on his return Change Ung was condemned to death. The Assistant Envoy Ke Too voluntarily undertook the medical restoration of the Mad King; who appears to have been pleased with his treatment, and gave him an escort of a dozen horsemen on his departure. On Ke Too's return he was charged with knowing that the Mad King ought to be put to death, and having neglected to take advantage of the opportunity that offered. For this omission of duty he was cast into the silkworm-house.

Formerly, when the attack was made on the Mad King, Woo-tsew-t'oo, a son of the Lusty King Ung-kwei-me's Heung-noo wife, fled with the Heĭh-hows, and took up his residence among the mountains to the north.

There giving out the report that the Heung-noo troops of his mother's tribe were coming to his support, multitudes were induced to rally round his standard. After this, when he had gathered strength, he made a sudden incursion on the old country, killed the Mad King, and set himself up as Kwăn-me. China then sent the Po-keang General Sin Woo-heen, in command of 15,000 troops, to Tun-hwang; and the Envoy Gan Hing-peaou was sent to construct a canal from the Marquis of Pe-te's well westward for the conveyance of grain to be deposited in granaries, in anticipation of the exigencies of a siege.

One of the Tsoo Princess' personal attendants from the first, the maiden Fung, who had gained a reputation as a historian, caligrapher, and manager of business, was entrusted with a token of credence from the Han, to conduct the bestowment of gifts,

on behalf of the Princess, among the settled kingdoms. She was honoured for her talents with the designation Lady Fung, and became the wife of the Right Generalissimo of Woo-sun. Now the Right Generalissimo happening to be on terms of intimacy with Woo-tsew-t'oo, the Governor General Ching Keĭh made use of the Lady Fung to convey an intimation to the usurper Woo-tsew-t'oo that a Chinese army was already on the march against him; and should matters come to an extremity, he would certainly be utterly exterminated; and it would be far better for him at once to tender his submission. Woo-tsew-t'oo, becoming alarmed, said :—"I merely wish to retain an inferior title." The Emperor Seuen-te sent orders to the Lady Fung to enquire into the matter personally; at the same time sending the interpreter Chuh Tsze, and the door attendant Kan Yen-show, as a convoy to escort her. The Lady Fung, now using a tapestried carriage, and holding a token of credence, summoned Woo-tsew-t'oo to appear before the Marquis of Chang-lo. Yuen-kwei-me was established as Great Kwăn-me in the city of Chih-kuh, and Woo-tsew-t'oo was retained as the Little Kwăn-me; on each of whom was conferred a ribbon and seal of investiture. The Po-keang General returned without crossing the boundary.

After this Woo-tsew-t'oo refused to bring back all the Heĭh-hows and people to their allegiance. China, in consequence, again sent Chang Hwuy, the Marquis of Chang-lo, with three battalions, to form a colony at Chih-kuh. There he effected a division of the people, and determined the boundaries (B.C. 53). More than 60,000 families were allotted to the Great Kwăn-me, and over 40,000 to the Little Kwăn-me. The hearts of the people, however, were all attached to the Little Kwăn-me.

Only a short time elapsed after this, when Yuen-kwei-me and Ch'e-me had both been carried off by sickness. The Princess then forwarded a letter to Court, saying :—"I am now old, my mind is burdened with thoughts about my native land; it is my wish to return, that my bones may rest in China." The Emperor sympathised with her in her sorrows, and went to meet her on her return.

The Princess reached the metropolis, accompanied by three of her grandchildren, in B.C. 51. Being then 70 years old, the Emperor gave her a house and grounds, with a retinue of servants male and female, suitable to an Imperial Princess, and treated her with the greatest liberality. On her appearance at Court she was received with the decorum due to an Imperial Princess.

Two years later (B.C. 49) she died, and her three grandchildren remained to pay attention to her grave.

Yuen-kwei-me's son, Sing-me, who succeeded his father as Great Kwăn-me, being of a feeble character, the Lady Fung ad-

dressed a letter to the Court, expressing a desire that a protecting force for Sing-me might be sent to Woo-sun. The Chinese, in reply, sent off a corps of a hundred troops as a present to Woo-sun. The Governor General Han-seuen memorialised with a recommendation that the Ta-le, Ta-luh, and Ta-keen of Woo-sun, should each be invested with the gold seal and purple ribbon, as a mark of honour to the assistants of the Great Kwăn-me. The request was acceded to. The same Governor General again memorialised to the effect that Sing-me, being a weak and timid prince, he might be set aside, and replaced by his paternal uncle the Left Generalissimo Ta-lo. The Chinese, however, refused to comply with this suggestion.

At a later period, when Twan Hwuy-tsung was Governor General, he recalled the exiled rebels and pacified them. On the death of Sing-me he was succeeded by his son Tsze-le-me.

When the Little Kwăn-me Woo-tsew-t'oo died, his son Foo-le ascended the throne, but was killed by his younger brother Jih-urh. China then despatched an envoy, who set up Foo-le's son Gan-jih as Little Kwăn-me; when Jih-urh fled, and took up his abode in K'ang-keu. The Chinese removed the Ke battalion to form a colony in Koo-mĭh, waiting for an opportunity to punish the delinquent. Gan-jih sent the nobleman Koo-mo-neĭh and two other, who feigning themselves exiles joined Jih-urh, and thus succeeded in stabbing him to death. The Governor General Leen Paou bestowed on Koo-mo-neĭh and his two companions each twenty pounds weight of gold and three hundred pieces of silk stuff. Gan-jih himself was afterwards assassinated by some of his subjected people. China then set up his younger brother Mo-chin-tseang as his successor.

About this time the Great Kwăn-me Tsze-le-me became powerful in his kingdom, and was greatly feared by the subject Heĭh-hows. He ordered the people to rear horses and cattle, to avoid the necessity of repairing to pastoral kingdoms for supplies; and peace prevailed, as in the time of Ung-kwei-me. The Little Kwăn-me Mo-chin-tseang, fearing his kingdom might be annexed, sent a nobleman named Woo-jih-ling, who while affecting to tender his submission, took occasion to mortally stab Tsze-le-me. The Chinese wished to send an army to take vengeance for the deed, but failed in the attempt. The Inner Gentleman Usher and General Twan Hwuy-tsung, who was sent with gold and silks, after consultation with the Governor General, set up E-chĭh-me, the uncle of Tsze-le-me and grandson of the Imperial Princess, as Great Kwăn-me. The Chinese had never received a hostage-son of the Little Kwăn-me at the capital. After a considerable interval of comparative tranquillity, Nan-se, a Heĭh-how of the Great Kăwn-me, assassinated Mo-chin-tseang;

who was then succeeded by Gan-le-me, a son of his elder brother Gan-jih, as Little Kwăn-me.

Annoyed that they had not themselves been instrumental in inflicting chastisement on Mo-chin-tseang, the Chinese again despatched Twan Hwuy-tsung in B.C. 11, who decapitated Fan-keu, the eldest son of the latter. On his return he received the title of Marquis of Kwan-nuy. Twan Hwuy-tsung, while careful not to involve the Chinese as having approved the act of the Heĭh-how Nan-se in killing Mo-chin-tseang, yet memorialised regarding his merit in punishing the rebels; for which Nan-se was made Keen-show Protector General. At the same time he reproached the Ta-luh, the Ta-le, and the Ta-keen for their conduct on the occasion of Tsze-le-me's assassination; on which account their gold seals and purple ribbons were taken away, and replaced by copper seals with black ribbons.

Pe-yuen-che, the younger brother of Mo-chin-tseang, who had taken part in the plot to assassinate the Great Kwăn-me, now went northward at the head of over 80,000 followers; and attaching himself to K'ang-keu, formed the design of bringing the two Kwăn-mes into subjection by force of arms. Full of apprehension, these two potentates placed themselves under the protection of the Governor General.

In B.C. 1, the Great Kwăn-me E-shih-me attended the Court audience in person, together with the Shen-yu; on which occasion the Chinese made a great display.

In the period *Yuen-che* (A.D. 1-5), Pe-yuen-che killed Woo-jih-ling, to advance his own interest with China, for which he was made Marquis of Kwei-e.

The two Kwăn-mes now both being weak, were invaded by Pe-yuen-che; and he in turn was killed by the Governor General Sun-keen.

From the time that Woo-sun was placed under the divided rule of two Kwăn-mes, it had been a cause of great anxiety and trouble to China, and the land had never enjoyed a year of tranquillity.

Koo-mih.[1]

The capital of the kingdom of Koo-mih is the Southern city, distant from Chang-gan 8,150 *le*. The kingdom contains 3,500 families, comprising a population of 24,500. Its army numbers 4,500. There are a Marquis of Koo-mih, a National Assistant Marquis, a Protector General, a Right General, a Left General, a Right Knight, a Left Knight, and two Interpreters-in-chief. The

[1] This kingdom was on the north bank of the River Tarim, from the confluence of the Kashgar and Yarkand rivers eastward.

seat of the Governor General lies 2,021 *le* to the east. Khoten lies to the south, at a distance of fifteen days journey on horseback. The country joins Woo-sun on the north, and produces copper, iron, and orpiment. There is free communication with the kingdom of Kwei-tsze (Kuchay), which lies 670 *le* to the east.

In the time of Wang Mang (A.D. 9-22), the King of Koo-mih killed the King of Wan-suh, and annexed his kingdom.

Wan-suh (Aksu).[1]

The capital of the kingdom of Wan-suh is the city of Wan-suh, distant from Chang-gan 8,350 *le*. The kingdom contains 2,200 families, comprising a population of 8,400. Their army amounts to 1,500. They have a National Assistant Marquis, a Left General, a Right General, a Left Protector General, a Right Protector General, a Left Knight, a Right Knight, and two Interpreters-in-chief. The seat of the Governor General lies 2,380 *le* to the east. Yu-t'ow (Uch) lies 300 *le* to the west. The city of Chih-kuh, in Woo-sun, lies 610 *le* to the north. The country and its productions are similar in character to those of Shen-shen and the neighbouring kingdoms. Koo-mih lies 270 *le* to the east, with free communication.

Kwei-tsze (Kuchay).[2]

The capital of the kingdom of Kwei-tsze is the city of Yen, distant from Chang-gan 7,480 *le*. The kingdom contains 6,970 families, comprising a population of 81,317 persons. The army numbers 21,076. There are a Grand Protector General, a Sub-National Assistant Marquis, a Kingdom Pacifying Marquis, a Hoo-chastising Marquis, a Hoo-interjacent Protector General, a Keu-sze Chastising Protector General, a Left General, a Right General, a Left Protector General, a Right Protector General, a Left Knight, a Right Knight, a Left Strong Assistant, a Right Strong Assistant, two Colonels of the East, two Colonels of the West, two Colonels of the South, two Colonels of the North, three Hoo-interjacent Princes, and four Interpreters-in-chief. The country joins Tsing-tseue on the south, Tseay-muh on the south-east, Yu-me on the south-west, Woo-sun on the north, and Koo-mih on the west. The inhabitants are dextrous at founding and

[1] This country lay on the north bank of the Kashgar river, about the site of modern Aksu, as stated in the "Se yĭh t'ung wăn che."

[2] There is no doubt about the identity of this place, of which the name is not altogether obliterated in the modern pronunciation. The great Russian map places the city in about 83° E. long. (Greenwich), 41° 33′ N. lat. It is at present garrisoned by the Chinese and is considered the key of Turkestan.

casting;[1] and the country produces lead.[2] The city of Woo-luy, the seat of the Governor General, lies 350 *le* to the east.

Woo-luy.[3]

Woo-luy contains 110 families, comprising 1,200 persons. It has 300 trained troops, a City Protector General, and an Interpreter-in-chief. The city is the seat of the Governor General. Keu-le lies 330 *le* to the south.

Keu-le.[4]

Keu-le has a City Protector General. The state contains 130 families, comprising 1,480 persons. There are 150 troops. The country joins Yu-le on the north-east, Tseay-muh on the south-east, and Tsing-tseue on the south. It is bounded on the west by a river, which leads to Kwei-tsze (Kuchay) at a distance of 580 *le*.

When a road to the Western regions was first opened up, in the reign of Woo-te, a Deputy Protector was appointed, and a military colony planted in Keu-le. There were then incessant military complications, the troops were on the move for thirty-two years, and there was a general scarcity of provisions.

In the year B.C. 90, the Urh-sze General Le Kwang-le being in command of the troops, effected the submission of the Heung-noo.[5]

The Emperor being now weary of his distant military enterprises, the Show-suh Protector General Sang Hung-yang with the Prime Ministers and Censors, laid a memorial before the throne, to the following effect :—

[1] A modern Chinese account translated by Father L'Amiot says :—"1,060 lbs. of copper are brought [yearly] to Kouchay to be coined."—"(Chinese Repository," vol. ix, p. 123.)

[2] The Buddhist traveller Heuen-chwang, who passed this way in the seventh century, says :—"On y trouve des mines d'or, de cuivre, de fer, de plomb et d'etain."—"(Mémoires sur les Contrées Occidentales," tome i, pp. 3, 4.)

L'Amiot's translation mentions saltpetre, sulphur, and copper among the productions, but no lead.

[3] The native polyglot geographical dictionary, published by imperial authority last century, gives Tsetar as the name of a town now occupying the site of this ancient settlement (*see* "Se yïh t'ung wan-che," book ii, fol. 15). On the great Russian map of Central Asia there is a town marked "Czatyr" (N. lat. 41° 50′, E. long. 85° 13′), on the high road between Kharashar and Kuchay, about 90 miles from the former, and 100 from the latter. This appears to answer tolerably well to the various data of the Chinese text.

[4] This small state must have been somewhere in the vicinity of the lake Baba kul; but the site cannot be accurately identified. The great Imperial Geography places it on the north bank of the River Tarim.

[5] *See* the "Journal of the Anthropological Institute of Great Britain and Ireland," vol. iii, No. 3, pp. 438–440.

"From ancient Lun-t'ae (*Yugur*)[1] eastward, Tsiĕh-che and Keu-le are both ancient states. The land is broad and fertile, and water and herbage are everywhere plentiful. There are about 800 acres of arable land. The climate is genial; the soil is excellent, and might be improved by drains and watercourses. The different kinds of grain grow there, and ripen about the same time as in China. Awls and knives are scarce in the neighbouring countries, and the people set a high value on gold and silk fabrics of various colours. These we might give in exchange for their grain; and thus secure a sufficiency of food to save us from want. Your servants in their ignorance beg to suggest, that military colonies might be placed at ancient Lun-t'ae and eastward, and three Deputy Protectors be appointed, to divide the defence of the country between them. Then each taking a plan of his own territory, a system of drains and watercourses might be carried out. More grain might then be sown in the season. It would thus be convenient to send Provisional Cavalry leaders from Chang-yay and Tsew-tseuen, to watch over the affairs of the Deputy Protectors. The appointment of horsemen would facilitate the transmission of reports of the annual produce of the cultivated land.

"Our dependent people would become robust and vigorous, thus strengthening our position, while those who ventured to remove their habitations would tend towards the cultivated fields; and following their original vocation of rearing cattle, they would also clear the irrigated land. It would be expedient gradually to erect guard-stations at intervals from the Great Wall westward, to keep the Western kingdoms in awe. Let Woo-sun be encouraged as a vassal to transmit the regular tribute. Let ministers of business make a lucid division of the several tribes; and proceeding to the borders, give strict injunctions to the Governors and Protectors General to be very clear in regard to lighting the beacon fires. Let troops and horses be selected, to keep a careful watch, and let provender be stored up for use. Desirous that Your Imperial Majesty would send envoys to the Western regions, to set their minds at rest, your servants in their blindness have laid themselves open to capital punishment, by presenting this their request." On receiving this, the Emperor issued a rescript, containing a doleful lamentation on past proceedings, in the following terms:—

"Formerly the authorities memoralised to have the taxes of the

[1] This identification is given on the authority of the "Se yĭh t'ung wăn che," book ii, fol. 16, which says, "the modern town of Yugur represents Lun-t'ae of the Han." On the Russian map we find a place marked "Jusur," on the high road between Kuchay and Czatyr, about 60 miles from the former and 40 from the latter, which answers well to the position indicated in the text. The town is also called Poo-koo-urh.

people increased 30 per cent.; in order to provide for the border expenses: which proved a heavy burden on the aged and feeble, the orphans and childless. Now, again, a request is presented for troops to be sent to cultivate Lun-t'ae. This territory lies more than 1,000 *le* west of Keu-sze. Formerly when the Marquis of Keae-ling attacked the Keu-sze, the young princes of six kingdoms, including Wei-sew (Chagan-tungi), Yu-le (Kalga-aman), and Low-lan, who were residing at the imperial metropolis, all returned to their homes in advance, and sent animals to meet and provision the Chinese army; while the kings in person, at the head of several tens of thousands of troops, combined to surround the Keu-sze. On the submission of the king of the latter, it was judged expedient to suspend military operations by these several kingdoms; and they were unable again to offer provisions to the Chinese army on the road. When the Chinese troops capture a city, the consumption of provisions is very great; and what the men carry with them is totally inadequate to meet the wants. Eventually the more robust of the troops consume all the animals, while several thousand of the feebler die on the roads. I have sent mules and camels carrying food from Tsew-tseen, by the Jade gate, which have met the men and officers of the army at no great distance beyond Chang-yay; but still there was a very large number of the retainers left behind. Formerly when I did not understand these matters, Keun How-hung forwarded a despatch saying, 'The Heung-noo tied their horses by the fore and hind legs, and placing them under the city wall, sent a message to the men of Ts'in, saying,—"We beg these horses."'

"Again, when an envoy from the Han was for a long time detained by them, and did not return, an army was sent under the command of the Urh-sze general to vindicate the dignity and importance of the envoy. Anciently, when the high ministers and great statesmen held a consultation, if on examining the tortoise the prognostic was infelicitous, they desisted from action. Now taking the despatch on the bound horses, I looked round on the prime ministers, censors, two thousand stone stipendiary great statesmen, the secretaries of literary pretension, even to the Protectors General of the regions and dependent states; Ching Chung; Chaou Po-noo and others; who all considered that captives binding their own horses was extremely infelicitous. Some said, when put to the test, what is insufficient for the powerful may be excessive for others. The augury by the 'Book of Changes' gave the *Ta kwo* ('greatness in excess') diagram, the stroke being the fifth-nine.[1] When the Heung-noo

[1] Wan-wang's text for this line is:—"Fifth-nine is a decayed willow-tree producing blossoms; an old woman obtaining a young husband, neither blame

suffered a grievous defeat, the summoning officers, provosts of regions, historiographers, astronomers, and meteorologists were consulted; and the grand augur with the tortoise and divining plant all indicated a felicitous response. The Heung-noo must be reduced, and no further prognostic could be obtained." The rescript also said:—"If we undertake a northern invasion, we shall certainly be victorious at the Foo mountains. The lot being cast for a general, that for the Urh-sze was most felicitous. I therefore personally commissioned the Urh-sze general to proceed to the Foo mountains, with the command that he should certainly not proceed farther. Now to deliberate on the prognostics of the diagrams is altogether misleading. The words of the spies who were taken prisoners by the marquis are eminently confirmatory of this, where they say,—The Heung-noo, on hearing that the Chinese army was advancing, sent wizards to bury sheep and oxen on all the roads and watercourses by which they might come, in order to bring a curse on the forces.' When the Shen-yu presents horses or cloaks to the emperor, he causes the wizards to bless them. Binding the horses implies a curse on the army. Again the lot was cast for another general for the Chinese army; but the prognostic was infelicitous. The Heung-noo are accustomed to say,—'China is an exceeding great country, and cannot be destroyed by hunger and thirst.' But one wolf can put to flight a thousand sheep; and the numbers who were slain, taken captive, and dispersed on occasion of the Urh-sze general's defeat have been a perpetual load of grief on my heart. Now the request is made to form a camp at Lun-t'ae; whence it is proposed to erect a line of guard stations. That, indeed, would embarrass the empire, and is not the way to tranquillise the people. Now I cannot bear to listen to the talk of the banqueting-house magnates. Again, they are proposing to send prisoners to escort the Heung-noo envoy back. This illustrates conferring a marquisate to allay irritation; five earls having been unsuccessful. Moreover, when any of the Chinese submit to the Heung-noo, they are always taken aside and submitted to a searching examination; by which means the Heung-noo have become informed regarding the defenceless state of the present uncared for and dilapidated border fortifications. The chief officials of the look-out towers send the guards to hunt wild animals; for the sake of their skins and flesh. The men are in a miserable condition; the beacon fires are unattended to, and it would be impossible to assemble the forces. Subsequently,

nor praise result." Chow Kung says:—"If a decayed willow tree produces blossoms, how can this last long? That an old woman should marry a young man is detestable." (A Translation of the Confucian "Classic of Change," by the Rev. Canon McClatchie, M.A., p. 136.)

should those who have submitted to the Heung-noo bring an aggressive force, when we take some captives we shall ascertain the truth. We ought now to apply ourselves to prevent oppressive annoyances, and put a stop to arbitrary imposts. Let agriculturists sedulously pursue their avocations. Let horses be provided, and fresh orders issued to repair the breaches, and make good all deficiencies in the military defences. Let every chief of a state or region of two-thousand-stone-revenue send in trained horses, and plans for restoring the border erections, with estimates of the expense." After this the troops were not called forth. The prime minister Keu Tsëen-ts'ew was made Foo-min marquis, which shows the consideration given to the enrichment and culture of the people in the time of peace.

Previously, when the Urh-sze general Le Kwang-le went to attack Fergana, he passed through Yu-me on his return, and finding that Yu-me had sent the heir apparent Lae-tan as a hostage to Kwei-tsze, he reproachfully addressed Kwei-tsze, saying:—"All the outside nations are under vassalage to China; how does it happen that Kwei-tsze has received a hostage from Yu-me?" He then took Lae-tan with him to the metropolis.

Adopting the suggestion formerly made by Sang Hung-yang, the Emperor Chaou-te (B.C. 86–74) appointed the Yu-me heir-apparent Lae-tan Deputy Protector and General, with a commission to colonise Lun-t'ae. The territory of Lun-t'ae is conterminous with that of Keu-le. The event was inauspicious for the new general; for Koo-yih, one of the Kwei-tsze nobles drew the attention of the king, saying, "Lae-tan, who was originally our vassal, has now come with the seal and ribbon of investiture from China, to harass our nation by establishing a colony, which will certainly be detrimental to our interests." The result of this representation was, that the king found means to put Lae-tan to death; and then forwarded a despatch to China, acknowledging his transgression. The Chinese, however, did not find it convenient to resent the deed at that time.

In the time of Seuen-te (B.C. 73–49), however, when Chang Hwuy the Marquis of Chang-lo, was sent on a mission to Woo-sun, on his return he availed himself of the occasion to raise troops from the various kingdoms to the number of 50,000 men, with which army he attacked Kwei-tsze. On reproaching the king for his former atrocity, in putting Lae-tan to death, the king humbly addressed the invader, saying:—"The offence was committed at the instigation of Koo-yeh a noble of our kingdom, during the reign of my predecessor. I am guiltless in the matter," So saying, he handed over Koo-yih to Chang Hwuy, by whom he was forthwith decapitated.

About the same time, a daughter of the Imperial Princess of

Woo-sun, who had been sent to China to learn to play the *kin*,[1] was sent back by the Chinese, under the escort of a vice-president with music, to accompany the young lady past Kwei-tsze. The king of Kwei-tsze had already sent a messenger to Woo-sun to ask the hand of the princess' daughter; and before the messenger had returned, the young lady had reached Kwei-tsze. The king of Kwei-tsze thereupon detained her; and instead of forwarding her on the way, sent another envoy to report the matter to the princess. The princess acceded to the king's desire.

After this the princess forwarded a despatch, requesting that her daughter might be received at court as a member of the imperial house. Keang-pin, the king of Kwei-tsze, who was tenderly attached to his wife, also forwarded a despatch, saying, that as he had married a grand-daughter of the house of Han, and was consequently united by a fraternal bond, he wished to come to court with the daughter of the imperial princess.

The above request in both cases seems to have been granted; for in the year B.C. 65, the king and his consort came to court. The emperor received them graciously, conferring on each a seal and ribbon. The lady was gazetted as an imperial princess, and received presents of carriages, riding horses, flags, drums, singers, and pipers, several tens of persons in all; also fret and embroidered work, silks of various colours, gems and rarities, to the value of several tens of millions of taels. They remained a year, and were then sent away with costly presents.

After this they came several times to court, and were most graciously received, adopting the Chinese dress and manners. On their return home the king built a palace, with a wall and road surrounding the royal precincts. On going out and entering, the word was passed, and a big drum was beat, according to the Chinese palace customs. With these innovations, the Hoo of these countries were accustomed to say:—"An ass is no ass, and a horse is no horse; but what the king of Kwei-tsze calls a mule." When Keang-pin died, his son Ching-tih designated himself a grandson of the house of Han.

During the reigns of Ching-te and Gae-te (B.C. 32–1) there was a more frequent intercourse with China, and the Kwei-tsze king was received on more intimate terms.

Eastward from Keu-le, the road leads to Yu-le (Kalga-aman), at a distance of 650 *le*.

[1] The *kin* is an ancient and highly esteemed instrument of music of the lute kind. It is made of a choice wood, nearly 4 feet long, about 7 or 8 inches wide at one end and tapering to an inch or so narrower at the other. The upper surface is slightly convex, and it has seven strings. It lies flat on a table when played.

Yu-le (Kalga-aman).[1]

The capital of the kingdom of Yu-le is the city of Yu-le, distant from Chang-gan 6,750 *le*. The kingdom contains 1,200 families, comprising a population of 9,600 persons. There is an army of 2,000 troops, a Yu-le marquis, a Gan-she Marquis, a Right general, a Left general, a Right Protector general, a Left Protector general, a Hoo-chastising prince, and two Interpreters-in-chief. The seat of the Governor General lies 300 *le* to the west. The country joins Shen-shen and Tseay-muh on the south.

Wei-seu (Chagan-tungi).[2]

The capital of the kingdom of Wei-seu is the city of Wei-seu, distant from Chang-gan 7,290 *le*. The kingdom contains 700 families, comprising a population of 4,900. There are 2,000 troops, a Hoo-chastising Marquis, a Hoo-chastising Protector General, a Right general, a Left general, a Right Protector General, a Left Protector General, a Right knight, a Left knight, a Hoo-chastising prince, and an Interpreter-in-chief. The seat of the Governor-General lies 500 *le* to the west. Yen-ke is distant 100 *le*.

Yen-ke (Kharashar).[3]

The capital of the kingdom of Yen-ke is the city of Yuen-keu, distant from Chang-gan 7,300 *le*. The kingdom contains 4,000 families, comprising a population of 32,100 persons. The army numbers 6,000; and there are a Hoo-chastising Marquis, a Hoo-interjacent Marquis, a National Assistant Marquis, a Right General, a Left General, a Right Protector General, a Left Protector General, a Right Hoo-chastising prince, a Left Hoo-chastising prince, a Keu-sze chastising prince, a Keu-sze

[1] In the "Se yĭh t'ung wăn che" (book ii, fol. 14), Yu-le of the Han is identified with the modern Kalga-aman. This town we find on the Russian map on the north bank of the Chajdu gol, in about N. lat. 41° 50′, E. long. 86° 30′, Greenwich; which agrees very well with the notes of position in the Chinese text.

[2] In the "Se yĭh t'ung wăn che" (book ii, fol. 12), the ancient Wei-seu is identified with the modern Chagan-tungi; a town given on the Russian map on the west bank of the river Taszkaj, north-east from Kharashar, and in about N. lat. 42° 25′. E. long. 87° 36′ (Greenwich). The site agrees tolerably well with the Chinese numbers.

[3] Yen-ke is admitted by every authority to be represented by Kharashar of the present day, the principal garrison town in the southern circuit of Ili, in N. lat. 42° 15′, E. long. 87° 05′. Heuen-chwang, the Buddhist pilgrim, passed through the place in the seventh century, and described it under the name O-ke-ne.

reforming prince, two Hoo-chastising Protectors General, two Hoo chastising princes, and three Interpreters-in-chief. The seat of the Governor General lies to the south-west at a distance of 400 *le*. Yu-le lies 100 *le* south. The country joins Woo-sun on the north. There is a lake in the vicinity,[1] the waters of which contain abundance of fish.[2]

Woo-tan-tsze-le (*Teneger*).[3]

The capital of the kingdom of Woo-t'an-tsze-le is in the Yu-loo valley, distant from Chang-gan 10,330 *le*. The state contains 41 families, comprising a population of 231 persons. It has 57 soldiers. There are a National Assistant Marquis, a Right Protector general, and a Left Protector general. The country joins Tan-hwan (Sain-tara) on the east, Tseay-me on the south, and Woo-sun on the west.

Pe-luh (*Sengnima*).[4]

The seat of government of the kingdom of Pe-luh is in the state[5] of Keen-tang to the east of the T'een-shan range, distant from Chang-gan 8,680 *le*. The kingdom contains 227 families, comprising a population of 1,387 persons. The army numbers 422; and there are a National Assistant Marquis, a Right general, a Left general, a Right Protector general, a Left Protector general, a Right interpreter-in-chief, and a Left interpreter-in-chief. The seat of the Governor General lies 1,287 *le* to the south-west.

Ulterior Pe-luh.[6]

The capital of the kingdom of Ulterior Pe-luh is in the valley of Pan-keu-luy, distant from Chang-gan 8,710 *le*. The kingdom contains 462 families, comprising a population of 1,137 persons. The army numbers 350 persons. There are a National Assistant

[1] The Bostang Lake.

[2] The modern Chinese account of Kharashar, translated by Father Amiot, says:—"They dig canals which serve to water the lands, and take a great quantity of fish."—("Chinese Repository," vol. ix, p. 123.)

[3] The "Se yih t'ung wăn che" (book i, fol. 6) identifies Woo-t'an-tsze-le of the Han with Teneger of the present day, a place in the circuit of Urumtsi, and probably not far from that city; but it does not appear to be marked on the map.

[4] In the "Se yih t'ung wăn che" (book ii, fol. 10) Sengnima is said to be on the site of Pe-luh of the Han. This place belongs to the district of P'ichan, lying between Turfan and Hami; but it is not given on any European map.

[5] The text has *kwŏ*, or "kingdom," which is, perhaps, a clerical error for *kuh*, or "valley."

[6] This is obviously at no great distance from Pe-luh before mentioned, but no authority within reach gives any information as to its modern name or site.

Marquis, a Protector general, an Interpreter-in-chief, and two generals. The country joins Yeu-leĭh-sze on the east, the Heung-noo on the north, the kingdom of K'ëe (Bulalik) on the west, and Keu-sze on the south.

Yeu-leĭh-sze.

The capital of the kingdom of Yeu-leĭh-sze is in the Nuy-tuh valley, distant from Chang-gan 8,830 *le*. The kingdom contains 190 families, comprising a population of 1,445 persons. There are 331 troops; also a National Assistant Marquis, a Right Protector general, a Left Protector general, and an interpreter-in-chief. The country joins the territory of the city chief of Ulterior Keu-sze on the east, Pe-luh on the west, and the Heung-noo on the north.

Tan-hwan (Sain-tara).[1]

The capital of the kingdom of Tan-hwan is the city of Tan-hwan, distant from Chang-gan 8,870 *le*. The kingdom contains 27 families, comprising a population of 194 persons. It has 45 soldiers; also a National Assistant Marquis, a General, a Right Protector general, a Left Protector-general, and an interpreter-in-chief.

Poo-luy (Urumtsi).[2]

The capital of the kingdom of Poo-luy is in the Soo-yu valley on the west of the T'een-shan range, distant from Chang-gan 8,360 *le*. The kingdom contains 325 families, comprising a population of 2,032 persons. The army numbers 799. There are a National Assistant Marquis, a Right general, a Left general, a Right Protector general, and a Left Protector general. The seat of the Governor General lies 1,387 *le* to the south-west.

Ulterior Poo-luy (Tchanggi).[3]

The capital of Ulterior Poo-luy is distant from Chang-gan 8,630 *le*. The kingdom contains 100 families, comprising a

[1] Tan-hwan of the Han is identified by the "Se yĭh t'ung wăn che" (book i, fol. 7), with the present Sain-tára in the government of Urumtsi. The country was occupied by the Juan-juan tribe in the fifth century. During the Suy and T'ang dynasties it was held by the Eastern Turks, and subsequently, during the Ming, by the Eleuth Tartars. We are told it lay east of Teneger.

[2] This identification is given in the "Si yĭh t'ung wăn che" (book i, fol. 6), and as Urumtsi is given on the Russian map about N. lat. 43° 20′, E. long. 88° 10′ Greenwich, this gives a clue to the position of several other countries mentioned in this region.

[3] The "Se yĭh t'ung wăn che" (book i, fol. 10) gives both *Tchanggi* and *Lotica* as occupying the site of Ulterior Poo-luy of the Han. These places do

population of 1,070 persons. The army numbers 334; and there are a National Assistant Marquis, a General, a Right Protector general, a Left Protector general, and an interpreter-in-chief.

Western Tseay-me.

The capital of the kingdom of Western Tseay-me is in the valley of Yu-ta on the east side of the T'een range 8,670 *le.* The kingdom contains 332 families, comprising 1,926 persons. The army numbers 738. There are a Western Tseay-me Marquis, a Right general, a Left general, a Right knight, and a Left knight. The seat of the Governor General lies to the south-west 1,487 *le.*

Eastern Tseay-me.

The capital of the kingdom of Eastern Tseay-me is in T'uy-heu valley, on the eastern side of the T'een-shan range, distant from Chang-gan 8,250 *le.* The kingdom contains 191 families, comprising a population of 1,948 persons. The army numbers 572. There are an Eastern Tseay-me Marquis, a Right Protector general, and a Left Protector general. The seat of the Governor General lies south-west at a distance of 1,587 *le.*

K'ëĕ (Bulalik).[1]

The capital of the kingdom of K'ëĕ is in the Tan-keu valley on the eastern side of the T'een-shan range, distant from Chang-gan 8,570 *le.* The kingdom contains 99 families, comprising a population of 500 persons. There are 115 troops; also a National Assistant Marquis, a Protector general, and an Interpreter-in-chief. The seat of the Governor General lies to the south-west at a distance of 1,487 *le.*

Hoó-hoô (P'ichan).[2]

The capital of the kingdom of Hoó-hoô is in the Keu-sze-lew

not appear to be marked on any European map; but in the "Hwang chaou chung wae yĭh tung yu t'oo," a native atlas published at Woo-chang in 1863, the city of Tchanggi is placed about 40 miles west by slightly north of Urumtsi, bearing also the Chinese name Ning-pĕĕn. The station of Loklon-fort is also given about ten miles south of the city of Tchanggi.

[1] This identification is given in the "Se yĭh t'ung wăn che" (book ii, fol. 11) as the name of a place in the Government of P'ichan. The writer cannot find a place of this name on any map, native or foreign, but the distances seem to point somewhere north of Urumtsi.

[2] Hoó-hoô of the Han is stated in the "Se yĭh t'ung wăn che" (book ii, fol. 5) to have been on the site of modern P'ichan, a small but important town

valley,[1] distant from Chang-gan 8,200 *le*. The kingdom contains 55 families, comprising a population of 264 persons. There are 45 troops; also a National Assistant Marquis, a Right Protector general, and a Left Protector general. The seat of the Governor General lies 1,147 *le* to the west. Yen-ke (Kharashar) is distant 770 *le*.

Shan.[2]

The capital of the kingdom of Shan is distant from Chang-gan 7,170 *le*. The kingdom contains 450 families, comprising a population of 5,000 persons. The army numbers 1,000. There are a National Assistant Marquis, a Right general, a Left general, a Right protector general, a Left protector general, and an interpreter-in-chief. Yu-le (Kalga-aman) lies 240 *le* to the west; Yen-ke (Kharashar) is 160 *le* north-west; and Wei-seu (Chagan-tungi) 260 *le* to the west. The country joins Shen-shen and Tseay-muh on the south-east. The mountains produce iron; and the people, living among the mountains, depend on Yen-ke and Wei-seu for their grain and field produce.

Anterior Keu-sze (Turfan).[3]

The capital of the kingdom of Anterior Keu-sze is the city of Keaou-ho. The waters of the river there divide and flow round the city walls; hence the name Keaou-ho (confluent river). The city is distant from Chang-gan 8,150 *le*. The kingdom contains 700 families, comprising a population of 6,050 persons. The army numbers 1,865. There are a National Assistant Marquis, a National pacifying Marquis, a Right general, a Left general, a Protector general, a China reverting Protector general, a Keu-sze prince, an Arbitration prince, a Rural improvement prince, and two interpreters-in-chief. The

on the high road between Hami and Turfan. The Russian map places it in about N. lat. 42° 45′. E. long. 90° 20′, Greenwich.

[1] *Lit.* "Willow Valley of the Keu-sze." From a passage in the itinerary of Wang Yen tih, an envoy from the Chinese to the Ouigour capital (Urumtsi), in the tenth century we learn that passing through the government of Kiaou-ho (Turfan) "he traversed the Valley of Willows, made the passage of the Kin-ling Mountain, and reached the Ouigour capital." From this Julien concludes that the Kin-ling is that now known as the Tsikhe dabakhan (Julien's "Mélanges de Geographie Asiatique," p. 11). This is a fair guide to the position of the Hoŏ-hoŏ territory.

[2] The distances given in the text point to some place a little way north of the Bostang Lake, and agree tolerably well with a spot marked Uszaklal on the Russian map.

[3] Anterior Keu-sze of the Han is allowed by all authorities, both Chinese and foreign, to have occupied the site of the present Turfan. In the Russian map this city is placed about N. lat. 42° 55′, E. long. 85°, Greenwich. The town of Khara-hocho lies about 15 miles to the east.

seat of the Governor General lies south-west, at a distance of 1,810 *le*. Yen-ke is distant 835 *le*.

Ulterior Keu-sze (Murui).[1]

The capital of the kingdom of Ulterior Keu-sze is in the Foo-t'oo valley, distant from Chang-gan 8,950 *le*. The kingdom contains 595 families, comprising a population of 4,774 persons. The army numbers 1,890. There are a Hoo-chastising Marquis, a Right general, a Left general, a Right protector general, a Left protector general, and an Interpreter-in-chief. The seat of the Governor General lies south-west at a distance of 1,237 *le*.

Keu-sze Protectorate-general (Yatuku).[2]

The Keu-sze Protectorate-general contains 40 families, comprising a population of 333 persons. It has 84 trained soldiers.

Ulterior Keu-sze Presidency (Liem-tsim).[3]

The Ulterior Keu-sze Presidency contains 154 families, comprising a population of 560 persons. It has 260 troops.

In the year B.C. 99, the Heung-noo prince of Keae-ho, who having surrendered to China had been made Marquis of K'ae-ling, took command of the Low-lan troops and made an attack on Keu-sze; but the Heung-noo sent the Right sage prince to their relief, at the head of several tens of thousands of cavalry; when, the Chinese troops being unequal to the contest, withdrew.

In B.C. 89, Ma T'ung the Marquis of Chung-hŏ, was sent in command of forty thousand cavalry to attack the Heung-noo; and having to pass north of the Keu-sze on his way, the Marquis of K'ae-ling was again sent in command of a body of troops from Low-lan, Yu-le, Wei-seu, and three other kingdoms, who created a diversion by making a separate attack on Keu-sze, and covered the advance of the Marquis of Chung-hŏ. The

[1] The "Se yĭh t'ung wăn che" (book i, fol. 8) gives Murui as occupying the site of Ulterior Keu-sze of the Han. A place of this name is marked on the Russian map in about N. lat. 43° 48′ E. long. 90° 35′ Greenwich, on the northern slope of the Tien-shan mountains. The same authority also gives Beshiterek as occupying part of the territory of the Ulterior Kew-sze, but this is not found on the map.

[2] Yatuku, in the Government of P'ichan, is given in the "Se yĭh t'ung wăn che" (book ii, fol. 10) as now occupying this small territory, but as no distances are given in the text, and it does not appear to be marked on the maps, it is difficult to point out the exact spot.

[3] The "Se yĭh t'ung wăn che (book ii, fol. 10) gives Liem-taim in the government of P'ichan, as occupying the territory of the Ulterior Keu-sze Presidency. As the name does not appear on any available map, the exact position is uncertain.

troops of the several kingdoms combined to surround Keu-sze, when the Keu-sze king surrendered, and became a vassal of the empire.

Towards the end of Chaou-te's reign, the Heung-noo again sent four thousand cavalry to form a colony in Keu-sze.

On the accession of the Emperor Seuen-te (B.C. 73), when five generals were sent in command of an army to attack the Heung-noo, those who had encamped in Keu-sze fled in alarm. The Keu-sze then renewed intercourse with China; at which the Heung-noo became irritated, and called upon them to send Keun-suh, the heir-apparent, as a hostage. Keun-suh, however, who was a grandson of the king of Yen-ke, was unwilling to go as a hostage to the Heung-noo, and fled to Yen-ke. The Keu-sze king then appointed his son Woo-kwei heir apparent.

When Woo-kwei ascended the throne he contracted a marriage with the Heung-noo family; and instructed them to cut off the passage of the Chinese to Woo-sun.

In B.C. 68, the Under Secretary Ching Keĭh and the Deputy Protector Sze-ma He led a company of pardoned criminals to form an encampment in Keu-le, and collect a store of grain, in anticipation of an attack on Keu-sze. In autumn, when the grain was gathered, Ching Keĭh and Sze-ma He raised upwards of ten thousand troops from the subject states; with which they united fifteen hundred of the troops in their own encampment, for a combined attack on Keu-sze. With this force they took the city of Keaou-ho by assault; but the king, being in a stone fortress on the north, did not come into contact with the troops. The provisions running short, Ching Keĭh and his party suspended operations, and returned to the camp at Keu-le.

Another harvest having been gathered in, the army was again called out to attack the king in the stone fortress; but when the latter heard that the Chinese army was advancing northward, he fled for assistance to the Heung-noo. The Heung-noo, however, refused to send troops on his account. When the king returned he took counsel with one of his nobles, named Soo-yew, on the desirability of surrendering to China; but he feared they would not trust him. Following Soo-yew's instruction, the king attacked the Heung-noo border kingdom of Little P'oo-luy, decapitated the chief, took captive the people, and with these as an offering, tendered his submission to Ching-Keĭh. The inhabitants of the little border kingdom of Kin-foo, who followed in the wake of the Chinese army, having committed acts of brigandage in Keu-sze, the king of Keu-sze, asking permission from the Chinese general, himself chastised the delinquent state. When the Heung-noo heard that Keu-

sze had surrendered to China, they sent an army to attack Keu-sze; while Ch'ing Keĭh and Sze-ma He led their forces north to meet them. Under these circumstances the Heung-noo considered it prudent not to advance; and the two Chinese generals left a watch and a picket of twenty men for the king's safety. When Ch'ing Keĭh and his comrades led the troops back to Keu-le, the Keu-sze king, fearing the Heung-noo troops might return and put him to death, mounted a light horse and fled to Woo-sun. Ch'ing Keĭh went to receive the king's consort and family, and placed them on the east of Keu-le; at the same time memorialising the throne regarding the affair. On reaching Ts'ew-tsuen on his way home, he received an imperial rescript ordering him back to form encampments in Keu-le and Keu-sze, to increase the stores of grain preparatory to a pacification of the western kingdoms, and the invasion of the Heung-noo. On Ch'ing Keĭh's return to Keu-le, he forwarded the family of the Keu-sze king to Chang-gan. There they were presented with most costly gifts; and at every court audience given to the barbarians they were put prominently forward to show the imperial magnanimity.

About this time Ch'ing Keĭh sent an officer with 300 men to form a separate encampment in Keu-sze; when he was told by some of those that surrendered that the Shen-yu and his great ministers all said:—"The Keu-sze land is rich and fertile, and near to the Heung-noo territory. Should the Chinese take possession of it with their encampments, and collect stores of grain, it will certainly be detrimental to the interests of the neighbouring kingdoms. We must certainly contest the occupation." They accordingly sent cavalry to attack the camp. Ch'ing Keĭh then, in concert with the Deputy Protector, took all the 1,500 men from Keu-le to the new camp. When the Heung-noo again sent a larger body of cavalry, the Chinese being too few to defend the camp, took up their position in the Keu-sze city. The Heung-noo general then advancing to the city wall, thus addressed Ch'ing Keĭh:—"The Shen-yu is determined to contest the occupation of this land. You cannot maintain a camp here." After surrounding the city for several days, they raised the siege; after which several thousand horsemen were kept always on the patrol to preserve Keu-sze. Ch'ing Keĭh then addressed a despatch to the Emperor, saying:—"Keu-sze is distant from Keu-le more than a thousand *le*, and they are separated by rivers and mountains. Being contiguous to the Heung-noo on the north, the Chinese troops in Keu-le are altogether inadequate to save Keu-sze. An additional number of men is wanted for the camp." The ministers in council, in view of the road, and the trouble and expense, considered it expedient

to give up the Keu-sze camp. By imperial decree the Marquis of Chang-lo took command of the Chang-yih and Tsew-tseuen cavalry, with which he advanced more than 1,000 *le* beyond Keu-sze northward, making a great military display, on which the Hoo cavalry in the neighbourhood of Keu-sze made off; and Ch'ing Keih was then able to return with his troops to Keu-le. Three Deputy Protectors had formed colonies in Keu-sze when the king absconded to Woo-sun. The sovereign of Woo-sun detained him, refusing to send him back; but sent an envoy to China, with a despatch, desiring that the king of Keu-sze might be detained for the safety of the nation, and proposing that an expedition should be speedily sent by the western road to attack the Heung-noo. The Emperor fell in with the suggestion, and summoned the former heir-apparent of Keu-sze Keun-suh, then residing in Yen-ke, and set him on the throne. The people of Keu-sze were then all removed, and settled in Keu-le; while the old Keu-sze country was abandoned to the Heung-noo. The new Keu-sze king being now in close alliance with the officers of the Chinese colony, he broke off all communication with the Heung-noo, and rejoiced to be on terms of intimacy with China.

After these events the Chinese sent the Under Secretary Yin Kwang-tih to reprimand Woo-sun, and to ask the release of the king of Keu-sze. A noble general of Woo-sun then proceeded to the imperial metropolis, where a dwelling was appropriated for himself, his wife and family. This was in B.C. 62.

A military colony was subsequently established in the old Keu-sze country under the Woo-ke Deputy Protector.

During the period *Yuen-che* (A.D. 1–6), a new road was opened up from Ulterior Keu-sze, north of Woo-chuen, as far as the Jade gate barrier, thus shortening the communication. This road had been made by Sen Tsin-yuh, the Woo-ke Deputy Protector, to shorten the distance by a half, and evade the dangers of the white dragon mound. Koo-keu the king of Ulterior Keu-sze, however, believing that the road might prove a check to his movements, looked upon it as an inconvenience. His territory joined that of the Heung-noo general of the south; and Sen Tsin-yuh having clearly pointed out the line of demarcation, he afterwards forwarded a memorial on the subject. Koo-keu received orders to verify the limits, but he refused to ratify the arrangement. He attempted at different times, by bribes of sheep and oxen, to induce the imperial officers to allow him to go beyond the boundary, but was unsuccessful. Koo-keu being a member of the Yu-twan-săng-ho family, his wife Koo-tsze-tseu said to him:—"Yu-twan-săng-ho, there is an air of military action about this; it will be well to have the troops

in readiness. Formerly the king of Anterior Keu-sze was put to death by the Governor General's cavalry leader. Now you have been long under restraint, and must inevitably die. It were better to surrender to the Heung-noo." He then suddenly decamped, and entered the Heung-noo country by way of the Kaou-chang wall. Now the Keu-hoo-lae king T'ang-tow, who was settled near the great tribe of the Red-river Keang, having been unsuccessful in a series of mutual raids, informed the Governor General Tan Kin of his peril; but the latter failed to render him timely relief. Suffering under oppression, and wrath against Tan Kin, he went eastward to the Jade gate barrier. Not being admitted within the barrier, however, he fled and tendered his submission to the Heung-noo, taking with him his wife, children, and more than a thousand of his people. They were received by the Heung-noo, who sent an envoy to China, with a despatch containing a statement of the matter. Wang Mang, the Marquis of Sin-too, who held the reins of government at the time, sent the Inner Gentleman Usher General Wang Chang and others on a mission to the Heung-noo. They told the Shen-yu that as the Western regions belonged to the empire, he ought not to have received the fugitives. The Shen-yu acknowledged his error, and handed over the two kings to the envoy. Wang Mang sent the Inner Gentleman Usher Wang Ming to wait at the Go-too-noo border in the western regions to receive them. The Shen-yu sent an envoy to escort them back; and took occasion to request that their crime might be pardoned. The Chinese envoy forwarded the request, but Wang Mang would not consent. He issued a rescript to assemble the various kings of the Western regions, the military were drawn up in rank, and Koo-ken and T'ang-tow were decapitated in their presence.

In the year A.D. 10, Chin Fung, the Duke of Kwang-sin, was made Grand Earl, and when about to proceed to the Western regions, Seu-che-le, the king of Ulterior Keu-sze, hearing of it, took counsel with his Right General Koo-te and his left General She-ne-che, saying:—"It is reported that Duke Chin has been made Grand Earl of the Western regions, and is about to leave for his destination. According to custom, an envoy must be supplied with oxen, sheep, grain, provender for the animals, guides, and interpreters. Formerly when the Woo-wei general passed, we were unable to provide supplies for the envoys. Now again that the Grand Earl is coming on a tour, our country being still poorer, I fear we shall be unable to provide the necessaries. I think we must abscond, and join the Heung-noo." The Woo-ke Deputy Protector hearing what was in the wind, summoned Seu-che-le and questioned him; but the latter refus-

ing to submit, he was put in fetters and sent to Tan Kin, the Governor General at the city of Loo, where he conducted his administration. Seu-che-le's people knowing that he would never return, all escorted him on the journey weeping. On being handed over to Tan Kin he was decapitated. After this, Seu-che-le's brother Hoo-lan-che, the National Assistant Marquis, took command of over 2,000 of Seu-che-le's people, drove off the domestic animals, and the whole nation absconded and submitted to the Heung-noo. About this time the Shen-yu was exasperated against Wang Mang for having changed his signet; which made him the more willing to receive Hoo-lan-che's submission. The latter then joined the Shen-yu's troops in a raid upon Keu-sze, when the Ulterior President was killed, and the Governor General's cavalry leader wounded; while Hoo-lan-che returned with his company to the Heung-noo. About the same time, the Deputy Protector Teaou Hoo falling sick, he sent the historiographer Chin Leang to plant a colony in Hwan-tseay valley, to guard against the Heung-noo raids; the historiographer Tsung Tae to take charge of the commissariat; the Aide-de-camp Han Heuen to superintend the defences; and Jin Shang the Marquis of Yew-keuh to superintend the fortifications. All these consulting together, said:—"The various kingdoms of the Western regions are all bordering on revolt; and the Heung-noo are preparing for a grand invasion, when we shall all be put to death. It would be well for us to kill the Deputy Protector, take the people, and tender our submission to the Heung-noo." Thereupon, taking several thousands of cavalry, they proceeded to the official residence of the Deputy Protector, where they availed themselves of some outbuildings to collect a supply of fuel. They also posted the following notice at the various posts of defence:—"A hundred thousand Heung-noo cavalry are advancing upon us, Let officers and men all stand to their arms." Three or four hundred new men afterwards joined them, whom they placed at a few *le* distant from the residence of the Deputy Protector. Early in the morning bonfires were lit, when the Deputy Protector opened the gates, and beat the drums to collect the officers and troops. Chin Leang and his party followed in, killed the Deputy Protector Teaou Hoo and his four sons, together with his brothers and their sons. The wives, daughters, and little children were all that were left alive in the stronghold of the Woo-ke Deputy Protector. They then sent men to the Heung-noo General of the south to carry the tidings of what had taken place. The general, taking with him 2,000 cavalry, went to meet Chin Leang's party. Chin Leang and his confederates carried off more than 2,000 of the Woo-ke Deputy Protector's officials and people, male and

female, to the Heung-noo country. The Shen-yu made both Chin Leang and Tsung Tae, Woo-fun-Protectors General.

Three years after this (A.D. 13) the Shen-yu died; when his younger brother Heen was set up as Woo-luy Shen-yu.

A treaty of peace and friendship was again effected with Wang Mang (A.D. 14); when the latter sent an envoy with presents of gold and silks as an inducement to the Shen-yu to give up Chin Leang, Tsung Tae, and the others. The Shen-yu took the four leaders, together with Che Yin, the man who had killed Teaou Hoo with his own hand, their wives, children, and subordinates, twenty-seven persons in all; who were put in fetters, placed in carts, and handed over to the envoy, who took them to Chang-gan. There Wang Mang had them all burnt to death.

After this, Wang Mang again played false with the Shen-yu (A.D. 16), and the treaty of friendship was utterly abandoned. The Heung-noo then made a grand attack on the northern border; while the Western regions were broken up and scattered like loose tiles. The kingdom of Yen-ke (Kharashar) being contiguous to the Heung-noo, first revolted, and killed Tan Kin, the Governor General; but Wang Mang felt himself powerless to chastise the offenders. In the latter part of the same year, Wang Tseun, the Woo-wei general, and Le Tsung, the Governor General of the Western regions, made an expedition to the Western regions in connection with the matter of the Woo-ke Deputy Protector. They were met at the borders of the several kingdoms, escorted with troops, and supplied with grain. Yen-ke falsely made a show of submission; while at the same time assembling troops for their own defence. Wang Tseun's party having more than 7,000 Sha-keu (Yarkand) and Kweit-sze (Kuchay) troops; divided them into several brigades, and entered Yen-ke. The latter country had troops in ambuscade with the purpose of intercepting Wang Tseun. The troops of Koo-mih; Yu-le, and Wei-seu; being all in a state of rebellion, concentrated towards Yen-ke, and made a combined attack on Ma Tseun and his party, who were all killed. When this had taken place, Koh Kin, the Woo-ke Deputy Protector, who had command of a separate detachment, marched on Yen-ke; and while the troops of the latter were absent, attacked and put to death all the aged and feeble, and then withdrew with his force. For this service Wang Mang made Koh Kin Baron of San-hoo. Le Tsung returning with the remnant of his force, protected Kwei-tsze.

Some years later (A.D. 23) when Wang Mang was dead, Le Tsung's authority was annihilated, and the power of China in the Westerns regions was at a minimum.

In the fifty kingdoms under subjection to China, there were—from Interpreters-in-chief, Presidents, Princes, Superintendents, Magistrates, Ta-luhs, Centurions, Lieutenants, Protectors general, Tseay-keus, Tang-hoos, Generals, and Ministers, up to Marquises and Kings—in all 376 persons holding the seal and ribbon of investiture from China. K'ang-keu, Ta Yue-she, Gan-seih, Ke-pin, and Woo-yih, being all at an extreme distance, are not included in the number. When envoys came from these bearing tribute, they were cordially recompensed; but no oversight was exercised, nor were they under control.

PAN KOO'S REFLECTIONS ON THE PRECEDING NOTES.

In the reign of the Emperor Woo-te, when plans were formed for arresting the Heung-noo disasters, these having formed a compact with the Southern Keang from the kingdoms in the West, four regions were established along the bend of the Yellow River, and the Jade gate was opened as a thoroughfare to the Western regions. The right arm of the Heung-noo was thus cut off, and a through separation effected between them and the Southern Keang and the Ta Yue-she nations. The Shen-yu being thus utterly baffled, removed his encampment to a great distance, and ceased to hold his court in the south. During the reigns of Wăn-te and King-te, the people were nourished in a period of peaceful tranquillity. For five generations the empire was prosperous and wealthy; riches and strength were superabundant; while troops and horses were robust, and in good condition. Hence the people could attend to agriculture, and tortoise-shell being disseminated, Choo-yae and six other regions were added to the empire. Thanks to the Keu soy and bamboo staves, Tsang-ko and Yue-suy were annexed. The reports regarding the celestial horses and grapes led to the opening up of communication with Fergana and Parthia. From this time, carbuncles, tortoise-shell, white heart rhinoceros horn, plumagery and such rarities were found in profusion in the after palace; foreign palfreys, dragon-figured, fish-eyed, and blood-perspiring horses thronged the imperial gates; while a menagerie of great elephants, lions, savage dogs, and large birds fed in the park outside; and strange objects arrived from foreign lands in every direction. At the same time the imperial forest was enlarged, the Kwan-ming pool was excavated, the palace of a thousand gates and ten thousand doors was built, and the tower of communication between Heaven and the spiritual powers was erected. The cyclical screens were formed of fine silk, with rows of pearls and harmonising gems; and the Emperor, while occupying the place, wore the hatchet embroidered robe, and variegated lower garment, and

rested on a jade stand. Amid this luxuriance there were pools of wine and forests of flesh, for the entertainment of the barbarian guests arriving from all quarters. There were also the Pa and Yu acrobatic feats, and the *T'ang-keih* music of transmarine nations. Huge monsters roamed about, while the waters teemed with fish and dragons. The dramatist gave his entertainments to gratify the assembled multitudes. Presents were made, and visitors were escorted back for ten thousand *le*; till the expenses of such expeditions surpassed calculation. At length the revenue was found to be inadequate. The wine was then sold off; the sale of salt and iron was brought under regulation; and coins of white metal[1] were cast, to use for presents representing the skins and silks. The carriages and boats were let out on hire; the strength of the people and the domestic animals was bent with oppression; while their wealth was utterly exhausted. The result was years of dearth; added to which, highway robberies became so common that the public thoroughfares were impassable. The moral is this:—when a nation begins by a display of embroidered garments, and by the free use of the military, cuts itself off from the other regions and states, it ends by being itself conquered. Thus it happened that in the later years the territory of Lun-t'ae was abandoned, and the Emperor publicly proclaimed his distress. Truly this is a subject of remorse for the benevolent and the sage.

Among the dangers of the passage through the Western regions, are, near home the dragon mound; and more remote, the Tsung-ling mountains, the Fever Bank, the Head-ache Mountain, and the Hindu Kush Range. Speaking of the latter, the Prince of Hwae-nan, Too Kin, and Yang Heung, all designate it as the boundary province between heaven and earth, the point of absolute separation between the interior and exterior. It is said in the "Shoo King:"—"The wild tribes of the West all coming to submit to Yu's arrangements."[2] Yu having come, they fell in with his arrangements. It was not that they were brought to submit to the imperial dignity, and so induced to bring tribute. The various countries of the Western regions having each one its prince and its troops, are divided and weak, having no common bond of unity. Although subject to the Heung-noo, they have no intimate bond of attachment. The Heung-noo obtain horses, cattle, and woven fabrics from them; but have never been able to cultivate a mutual intercourse with them. They are utterly cut off from China by the nature of the country; and being at such an impracticable distance, it is no advantage to be on good terms with them, and we lose nothing by abandoning them. The source of prosperity is in ourselves, and we gain nothing by them.

Hence, since A.D. 25, the powers of the Western regions, in view of the dignity of the Chinese empire, have generally rejoiced to

[1] This was a composition of silver and tin.

[2] *See* Legge's "Shoo King," part III, book i, chap. x, par. 88.

maintain an attachment. Some of the smaller states, such as Shen-shen and Keu-sze, whose borders are hard upon the Heung-noo, have been retained by the latter; but the larger kingdoms, such as Sha-keu (Yarkand), and Yu-teen (Khoten), have repeatedly sent envoys and placed hostages with China; desiring to be under the care of the Governor General. Our sacred Emperor taking a wide survey of history past and present, and studying the exigencies of the time, keeps them under restraint; not absolutely repelling their advances, while carefully avoiding promises. The Great Yu, when he rendered the wild tribes of the West submissive; Chow Kung, when he yielded the white pheasant, and T'ae-tsung in his misunderstanding about the running horse, are all instances of the same principle, and may be adduced in its support.

APRIL 26th, 1881.

Prof. W. H. FLOWER, LL.D., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From L'ACADEMIE ROYALE DES SCIENCES DE BELGIQUE.—Mémoires des Membres, 1816, 1878. Mémoires couronnés et des savants étrangers, Tome XXXIX, p. 2; Tomes XLII, XLIII. Mémoires couronnés et autres Mémoires, Tomes XXIX, XXX, XXXII. Bulletins de l'Académie, Tomes XLVI-L. Annuaires, 1879-1881.

From L'INSTITUT GEOGRAPHIQUE INTERNATIONAL.—Bulletin, Nos. 3, 4.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, Tome XXXII; No. 2.

From the GERMAN ANTHROPOLOGICAL SOCIETY.—Correspondenz Blatt, April, 1881.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1482, 1483.

—— Journal of the Royal Asiatic Society, Vol. XIII, Part 2.

—— Proceedings of the Asiatic Society of Bengal, February, 1881.

—— Proceedings of the Society of Antiquaries, Vol. VIII, No. 4.

From the EDITOR.—"Nature," Nos. 598, 599.
—— Revue Scientifique, Nos. 16, 17.
—— Revue d'Anthropologie, 1881, No. 2.
—— Matériaux pour l'histoire de l'homme, Tome XII, liv. 4.

Mr. J. E. PRICE, F.S.A., exhibited a collection of human and other bones discovered in a shaft or well at the Roman Villa at Morton, near Brading, in the Isle of Wight, upon which Professor Flower, who had examined the remains, made the following remarks:—

REPORT *on* BONES *found in a* ROMAN VILLA *at* MORTON *near* BRADING, April, 1881. By Professor W. H. FLOWER, F.R.S.

THE bones submitted to my examination by Mr. J. E. Price and Mr. F. G. H. Price, are all much in the same state of preservation, and probably all contemporaneous. They are fragmentary, light, porous, clean, and have the appearance of having been buried many years in a dry soil.

They are—

1. *Man.*—Fragments probably of one and the same skeleton —consisting of portions of skull, *i.e.*, of frontals, parietals, temporals, of superior maxilla with nearly all the upper teeth, and the posterior part of one ramus of the lower jaw. The left femur, wanting the lower end. The right humerus in the same condition. Portions of the right scapula and clavicle and of the left innominate bone. Part of the atlas and of four lumbar vertebræ and numerous fragments of ribs.

From the condition of the bones it is certain that the individual was adult, and probably of middle age, and about the average stature, *i.e.*, 5 feet 6 or 7 inches. The bones are all tolerably stout, especially the clavicle, and the mastoid processes of good size, indications which point to the supposition that the individual was a male, though of no specially great muscular development. On the other hand, what remains of the supraorbital ridges is thin and the frontal region is rather feminine in form. None of the teeth show the slightest signs of decay, but all are moderately worn on their grinding surfaces.

2. *Dog.*—Numerous remains of at least three individuals, all of nearly the same age and size, not more than half grown, having all the milk teeth in place. The remains consist of portions of the skull, with one lower jaw nearly complete, many long bones, including 6 humeri, 6 tibiæ, 5 femora, 5 radii, 18 metacarpals and metatarsals, ribs, vertebræ, portions of pelvis and of scapulæ.

3. *Ox.*—Young. Fragment of scapula and ribs and cervical vertebræ.

4.—*Horse.* One incisor tooth.

The following paper was then read by the Author:—

REMARKS *on some* ARCHAIC STRUCTURES *in* SOMERSETSHIRE *and* DORSETSHIRE. By A. L. LEWIS, Esq., F.C.A., M.A.I.

IN continuation of the observations which I have from time to time made before this and other Societies upon the rude stone monuments and other ancient works in different parts of the country, I now venture to offer a few remarks on some of those of Somersetshire and Dorsetshire.

The principal rude stone monument in these counties is the great collection of stone circles at Stanton Drew, about seven miles south of Bristol, and as these are well known, and have, moreover, been exhaustively surveyed by Mr. Dymond, whose plans are published with his descriptive and other notes by the British Archæological Association, I shall only give a general description of them. The central circle is about 365 feet in diameter, and a line drawn through its centre, or nearly so, in a direction about 54 degrees east of north and west of south takes us on the north-eastern side to another circle, and on the south-western side to three stones which appear to have formed a chamber, called the "Cove," (thus:— ⊓) the open side of which faced in a south-easterly direction; this resembles the Hoarstone at Enstone (Oxfordshire), and Kit's Coty House in Kent, except that there is no evidence of its having had a capstone, in which particular it resembles groups of stones at Avebury and at Arberlows (Derbyshire). If, as I believe, the circles with their north-easterly reference were devoted to the worship of the summer sun, these "coves" facing towards the south-east were probably devoted to the worship of the winter sun, and might well have served to protect any sacrificial fire from rough weather, and would thus remove one of Dr. Fergusson's objections to the use of stone circles for sun-worship. The circle which I have already spoken of on the north-eastern side of the great circle is about 100 feet in diameter, consists of very large stones, and is better preserved than any other part of the group; the distance from centre to centre of these circles is about 380 feet, and from the centre of the great circle to the cove about 990 feet. Another line, taken through the centre of the great circle, or

nearly so, in a direction about 20 degrees east of north and west of south leads us on the south-western side to a third circle, and on the north-eastern side to a single stone called Hauteville's Quoit; we thus get a distinct reference to two points on the north-east side of the great circle, and the general direction of the three circles is also in a bent line north-easterly and south-westerly, in which respect they resemble the Hurlers at St. Cleer, Cornwall, which are also three circles in a bent line running in a north-easterly and south-westerly direction, the largest, as at Stanton Drew, being in the centre. The diameter of the south-western circle is about 145 feet, and the distance from its centre to the centre of the great circle about 710 feet. Hauteville's Quoit is about 1,850 feet from the centre of the great circle. About 3,300 feet west by north from the centre of the great circle are two other large stones. The distance from the centre of the north-eastern circle to that of the south-western circle is about 1,050 feet. On the east side of the central and north-eastern circles are the remains of avenues which lead in such a direction as to make it seem probable that they joined. The stones composing these avenues were thought by the antiquary Wood to be remains of four concentric circles surrounding the north-eastern circle, but he does not seem to have had more data to form his opinion on than exist at the present day, and the opinion of Mr. Dymond, as well as myself, is that these stones belonged to avenues and not to concentric circles. Mr. Wood also looked upon this assemblage of stones as a large planetarium, and suggested that the south-western circle represented the sun, the great central circle the earth, the north-eastern circle the moon, the "Cove" Venus, Hauteville's Quoit Jupiter, and the two stones at the greatest distance from the circles Saturn, while Mercury and Mars were represented either by some stones no longer existing, or by some of those of the avenues, which would be inconsistent with his other supposition of the latter having formed part of other circles. With these, or any other very elaborate astronomical speculations regarding our circles, I have little sympathy, although I firmly believe in their use for solar worship.

At Wellow, some ten miles east from Stanton Drew, is a tumulus about 30 yards long, at the south-eastern end of which is the entrance to a passage, nearly 50 feet long, 5 feet high, and from 3 to 6 feet wide, which has three transepts forming chambers; this very fine tomb is composed of small slabs of stone between and above which smaller stones are built up without cement, and form a sort of vaulted roof. According to an inscription at the entrance it was restored in 1858, by Mr. T. K. Joliffe, the lord of the hundred, the design of the original structure being

preserved as far as possible with scrupulous exactness. A similar monument seems to have existed in Nemnet parish, about three miles on the other side of Stanton Drew.

On passing from Somerset to Dorset we find no stone monuments equal to those just described. At Winterbourne Abbas, four or five miles from Dorchester, is a small circle called the "Nine stones," 28 or 30 feet in diameter (not in height as stated by the Post Office Directory); six stones only remain, two of which are 6 feet high, the others half that size or less; there are a road and a ploughed field close to the north of this circle, so that if there were ever an outlying stone there it has probably been destroyed or buried; according to Gough's Camden's "Britannia" there were formerly a large single stone half-a-mile to the west of this circle, and four smaller ones half-a-mile west of that, but I could hear nothing of them.

At Gorwell, on Tennant's Hill, four or five miles beyond Winterbourne Abbas, and about ten south-west from Dorchester, is a ring consisting of eighteen stones or fragments, all prostrate, the largest being 8 feet long; the figure which would touch most of them, so far as they are at present uncovered, would be an oval, of which the diameters would respectively be 87 and 78 feet, but they are much overgrown with turf, and if cleared it might be found that a circle of from 80 to 82 feet diameter would touch most of their original positions. I was not able to find any outlying stone or other remarkable feature to the north-east of this circle, but there is a thick plantation on that side, which shuts out the view of the surrounding hills, and within which a stone or stones may be buried; there are, however, two outlying stones towards the south, and these occur also at "Dance Maen" in Cornwall, and at "Mitchel'sfold" in Shropshire, and at very nearly the same bearing from the circles; I believe that some of the Cumbrian circles, which I have not yet visited, have outlying stones towards the south, Silbury Hill stands about south from the circle at Avebury, and Stonehenge has a barrow to the south and an outlying stone to the south-east on the line of the ditch. These coincidences are surely not undesigned; these stones, placed in these positions in so many cases, must have been so placed for some reason which it would be to the advancement of our science to find out. At Gorwell, about half-a-mile south-east of the circle just mentioned, are the remains of what appears to have been a large sepulchral chamber and tumulus; the latter stands from 4 to 6 feet above the level of the ploughed field in which it is situated, and at the south-eastern end are three stones close together in a line, two of which stand more than 6 feet above the ground outside; these would seem to have been headstones rather than supporting stones, though they may

have formed one wall of a chamber, as there are two stones in the tumulus immediately behind them, which appear to form part of two other sides of a chamber, and another lies flat in the position of a covering stone for the chamber (from under which I took a few worked fragments of flint) but these do not attain half the height of the stones first mentioned, so that my impression is that, while the chamber was covered with earth, the two tall stones stood out through the covering like our own gravestones. Something of the kind occurs in the Isle of Man, at "King Orry's grave," and the "Cloven Stones," concerning which I made some remarks before this Institute as long ago as November 1871; there is another stone 7½ feet long, lying flat on the edge of the tumulus in line with the upright stones, but at a little distance from them, so that I cannot say whether it was originally upright or another covering stone. The stones of all these Dorsetshire monuments are a kind of flint breccia.

Within two or three miles of the monuments just described is a place called the Valley of Stones, where there are great numbers of stones of various shapes and sizes, which probably got there by natural means; but at about the middle of them there is the semblance of a circle, ten yards in diameter, from which a few stones appear to form an avenue leading in a north-easterly direction towards one of the hills which bound the valley, and it is not impossible that these stones may have been arranged in their present position by man, even though they were brought very near to it by nature.

At Portisham, about eight miles from Dorchester, and two from Gorwell, is a dolmen called the "Hellstone," having nine upright stones from 5 to 6 feet high, supporting a capstone 9½ feet long, 7½ broad, and 2 thick. I believe that this structure has been "restored," and I should imagine not very accurately.

There is said to be a circle of large stones at a village called Poxwell, six miles south-east of Dorchester, but I could find nothing of them. I have since been informed that they are a hut circle or circles.

Though Dorset does not boast any very large megalithic structures it possesses several earthworks of different sorts, which are at least equal to those of any other county. The largest of these, called Maiden Castle, about two miles south-west from Dorchester, is a triple, and in some places quadruple, entrenchment of enormous strength, the entrances at the east and west being defended by a bewildering variety of detached ramparts; it is said to be 1,000 yards long, 500 broad, and a mile round, and to cover 115 acres, the inner area being 44 acres in extent, and I should think these statements rather under than over the mark; some writers assign this work to the Romans, but I

should rather suppose it to be British, though some fragments of pottery and tile I found seem to indicate its occupation during the Roman period. On the slope outside, and also within the ramparts, I found several fragments of worked flint, and I should think that, if the President were to devote his attention to this fortification, he might give us some valuable information about it. Between Maiden Castle and Dorchester—close to the railway station in fact—is Maumbury Ring, which appears to have been an amphitheatre, is said to be 220 feet by 140 feet in its respective diameters, and is attributed to the Romans. On another side of Dorchester, on a steep bank overlooking the river Frome, is a single entrenchment called Poundbury (locally, "Pumbury"); it is an irregular quadrangle the longest side of which runs nearly parallel with the river and is more than 400 yards long,—the extreme width is about 150 yards. This is attributed by some to the Danes, and by others to the Romans, who are thought, with much probability, to have erected it when attacking or "observing" Maiden Castle; there is a mound in the south-east corner which may have been a barrow, or a look-out post, or both; coins of Claudius Gothicus, Constantine II., Tetricus, &c., were dug up in the ditch when the adjoining railway was made; on the side overlooking the river there was a small slip in the rampart, from which I extracted a flake, which appears to me to have been newly struck off when it was buried in the rampart, from which circumstance I infer that at whatever time the rampart was constructed flint was still more or less in use.

Discussion.

Lord Talbot de Malahide expressed his obligation to Mr. Lewis for his very interesting account of the early antiquities of Somersetshire and Dorset. The speaker was not very well acquainted with the latter county, but thought that if Mr. Lewis had given some description of the great earthwork of Haggerstone and of the Giant at Carne, it would have increased the value of his paper.

Mr. Holt observed that several of the stones were pyramidal in form. This was also the case in Kit's Coty House, the Countless Stones, and in most other similar structures. Probably this would tend to the conclusion that they were associated with solar worship. He believed also that one of the outlying stones would generally be found placed at such an angle that it would cast no shadow at noon on Midsummer day, and so determine each year when that day had arrived.

Mr. Proundes remarked that the question raised by the noble Lord suggested to him that further light might be thrown upon the point by the discussion of the appearance in various parts of the world of graven images, and even of (burnt) clay effigies of the

human figure, which are met with in ancient burial places. It was the speaker's belief that these had been in some way connected with the survival of the rites of human sacrifice known to have existed in many parts of the world.

Mr. G. M. ATKINSON exhibited a new instrument which he had devised for measuring the facial angle, and read the following note:—

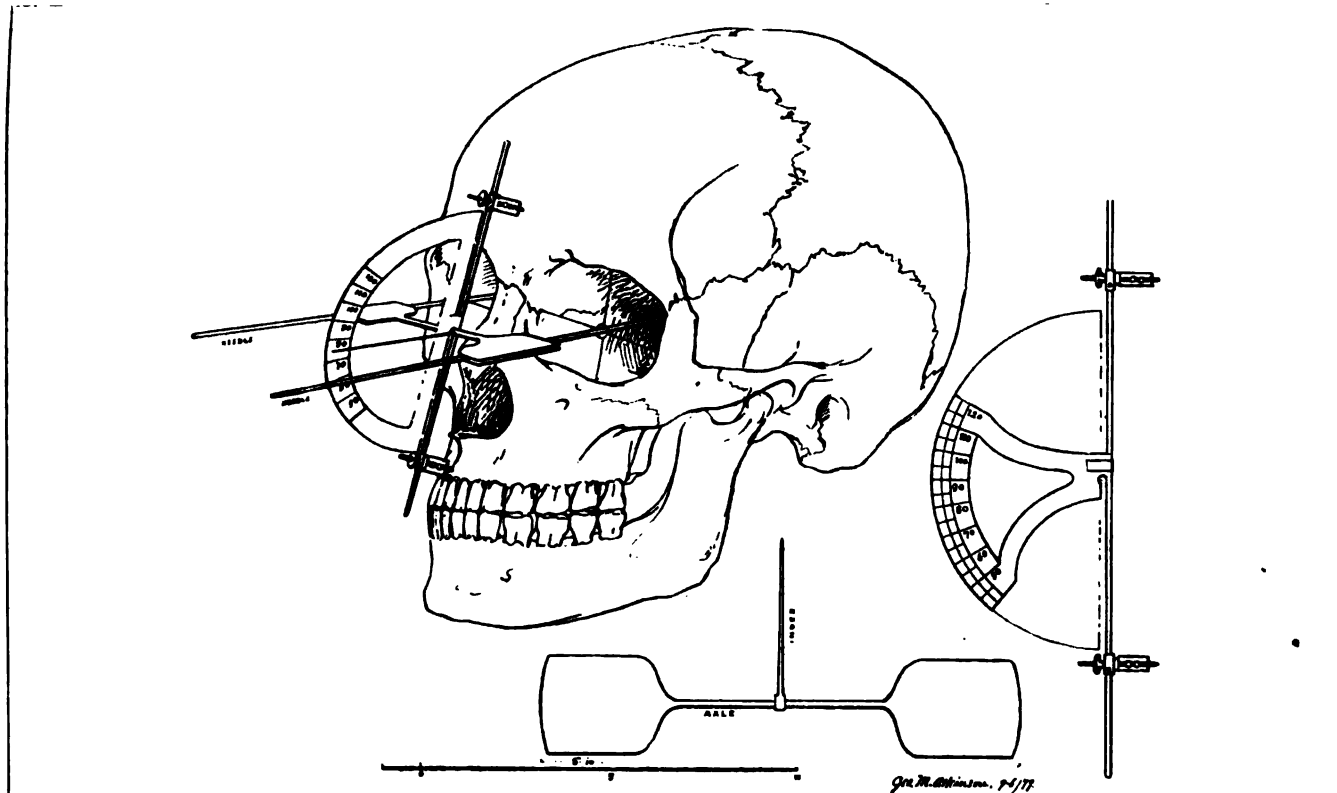
On a NEW INSTRUMENT *for* DETERMINING *the* FACIAL ANGLE.

By G. M. ATKINSON, Esq., M.A.I.

[WITH PLATE VII.]

THE form of facial angle which is recommended by the French Instructions is that included between two lines meeting at the nasal spine, and passing respectively through the ophryon and the auricular point, and is named by Broca the ophryo-spinal facial angle. Professor Flower, on the other hand, makes use of the slight modification of Cloquet's facial angle known as the ophryo-alveolo-auricular angle, *i.e.*, the angle formed by two lines drawn through the ophryon and the auricular point as in the first case, but intersecting, and therefore the vertex of the angle being situated at the alveolar point. Both of these angles are measured by the instruments invented by Broca, either by his lateral goniometer or more conveniently by his median goniometer. In Professor Flower's recent lectures at the Royal College of Surgeons he pointed out certain practical objections to both of these angles, and suggested that one formed by a horizontal which should represent the plane of the visual axis (which Broca has recently laid so much stress upon as the true horizontal plane of the head) and a facial line, touching the ophryon above and the alveolar point below, would give a more satisfactory indication of the real slant of the face, which it is the object of the facial angle to indicate. Acting upon this hint I have the pleasure of submitting to the Institute a model of an instrument by which this angle can be measured upon the cranium with perfect facility, the visual plane being determined, it must be observed, by the method recommended by Broca.

Thus, I insert a needle into each optic foramen, and fixing it at a point in the centre of the orbit corresponding to the pupil in the eyeball, I get two equivalents for the visual axes; two lines in the horizontal (base) plane. I connect the needles by a little axle about 5 inches long, which has flat end slits, so as to slide on the needles, an index pointer is attached to the



MR. ATKINSON'S INSTRUMENT FOR DETERMINING THE FACIAL ANGLE.

axle in the middle, and is in the same plane as the flattened ends, thus connecting the visual or "horizontal" plane. A bar carrying a semicircular protractor, or portion of one, with movable projections fixed by small screws, is constructed to be affixed at the centre point of the protractor, and to have a free movement alongside the index pointer, on the axle. If this bar-protractor be placed in position on the cranium so that the projections touch the ophryon and alveolar points, the number of degrees of the facial angle will be indicated by the index pointer on the protractor, as illustrated in Plate VII.

Discussion.

Professor Flower made some remarks upon the subject, and explained the use of such an instrument.

Professor G. D. Thane observed that the object of the facial angle is to measure and express the degree to which the face projects beyond the fore part of the cranium. This may be indicated by the angle which the more or less oblique facial line makes either with the horizonal plane in the natural position of the head, or with a base-line drawn within the skull itself. The instrument which had been exhibited by Mr. Atkinson, and of which the use had been so lucidly explained by Prof. Flower, affords a ready means of ascertaining the angle between the facial line and the orbital axis: and if the latter be accepted as indicating the visual plane, and therefore the true horizontal plane of the head, the degree of prominence of the jaws can thus be easily determined according to the first method. Considering, however, that it is open to doubt whether the orbital axis is coincident with the visual plane, and also the desirability of making our measurements for purposes of comparison as far as possible in relation to standards and base-lines contained within the skull, the second mode of estimation appears to present more advantages. For this purpose the basi-nasal line, which may be regarded as the common base-line of the cranium and face, is preferable to any of the lines passing through the auricular point, and the angle included between this line and a facial line drawn from the nasal point to the alveolar point, *i.e.*, a basio-nasio-alveolar angle, would, it is to be expected, give valuable results. We do not, however, possess the means of taking this angle directly on the skull, and an instrument that would render this operation practicable would be a useful addition to our apparatus, and would allow the opinion here expressed to be put to a practical test.

The Rev. W. S. Caiger then read a paper on "Thomas of Aquinum and Anthropology," upon which some remarks were offered by Mr. Distant.

The STONE AGE *of* SOUTH AFRICA. By W. D. GOOCH, Esq., C.E., M.A.I.

[WITH PLATES VIII TO XV.][1]

[A Paper read before the Institute on January 11th, 1881.]

MY object in putting together the following notes is to reduce to some sort of scientific shape the information I have collected relating to the presence of Stone Implements in South Africa, their types, occurrence, and distribution; and thus to form a starting point for future observations by collaborateurs in this interesting and ample field for Colonial investigation.

The sources from which I have compiled my paper are—together with full personal observations—as under:—

Local authorities and workers, who have given me information.

Commandant Bowker, Basutoland.
Dr. Langham Dale, Superintendent of Education, Cape Town.
Mrs. Barber, Diamond Fields.
Roland Trimen, Esq., Curator of Cape Town Museum.
John Sanderson, Esq., D'Urban, Natal.
Mr. E. Dunn, Government Geologist, Cape Colony.
Sir Theophilus Shepstone, K.C.M.G.
Dr. P. C. Sutherland, Surveyor-General, Natal.

Museums and Collections which have been at my disposal.

My own Collection.
The Cape Town Museum.
Dr. Langham Dale's Collection.
Mr. E. Dunn's Collection.
Mr. John Sanderson's Collection.
The Lane-Fox Collection, South Kensington.
The Christy Collections, by kindness of A. W. Franks, Esq.
Sir Joseph Hooker's Collection, with references to private letters.
The Collection of Geo. Busk, Esq.
" Sir John Lubbock.
" John Evans, Esq.
The Blackmore Museum, memo. by J. Blackmore, Esq.

And I take this opportunity of acknowledging the courtesy and assistance I have received at the hands of the gentlemen whose names are here mentioned.

[1] Several of these plates are due to the liberality of the author.

In carrying out the Railway Works in Natal, of the construction of a portion of which I had charge for the Contractors, Messrs. Wythes and Jackson, I became aware of the large number of implements occurring in that Colony; and subsequent explorations in districts removed from these works showed the unlimited and inexhaustible field which lay unopened.

I had previously, whilst on similar work in Russia, made a collection of implements, and by means of the Copenhagen, Brussels, and English Collections, had become thoroughly acquainted with the types occurring in Europe. But until our railway sections and operations began in Natal, I had failed to recognise any distinct indications of a Stone Age there.

Mr. John Sanderson, of D'Urban, Natal, brought some specimens with him to England in 1878, which he placed, with a short paper, before your Society. The greater portion of this paper was, as he said, the reprint of a few notes put together by myself for him in Natal, when exhibiting my earlier finds to a Colonial Society, for the purpose of calling attention to the interesting branch of scientific research placed within Colonial reach.

In treating my subject, I propose to discuss it from the following aspects.

1st. Types of Implements.
2nd. Distribution of Implements.
3rd. Character of Deposits in which they occur.
4th. Character of Material of which they are fashioned.

For the purpose of reference, I have divided South Africa into districts, which the apparent grouping of types or forms of the implements found in them seemed to suggest.

Cape.—Comprises the district, including Cape Point, to the south, and extending to the Hottentot Mounts inland. The sweeps of Table and False Bay are included.

Coastlands.—All the low-lying districts immediately bordering the sea—often sandy flats or dune covered—from the Knysua North into Zululand.

Berglands.—Includes all the broken mountainous country, commencing in the south and terminating north-east in the Giant range of the Kathlamba. The Hottentot range Sneeberg, Stormberg, &c., form part.

Uplands.—Describes the high plateau from 1,000 to 2,000 feet above sea level, to the east of the mountains; it probably also includes the Karoo.

Overberg.—This is the entire district, situated inland at a high elevation, and bounded seawards by the Berglands.

I.—Types of Implements.

I shall classify these under the following heads:—

a. Ornaments, &c.
b. Weapons of War and the Chase.
c. Domestic Utensils, &c.

Class A.—Ornaments.

Beads.

Carnelian, perforated.

These were sent by Commandant Bowker from Albany to Sir Joseph Hooker, who kindly lends the examples on the table.

Mr. Bowker says regarding them, in a letter to Sir Joseph:

"They are found at several spots on the sea-coast, between the St. John's River and the Fish River. Those I now send are from a small rocky bay, about ten miles eastward of the Kei River, and were found amongst broken shells at high-water mark. They were long supposed to have been washed up from a sunken vessel, as little bits of broken pottery, "Ginger jars," are found with them; they are most plentiful after rough stormy weather."

Under these circumstances, I admit them with much doubt into my list.

I have thought it better however to notice their presence.

Shells (Natica),

Used for stringing at the present time by natives, have been found, I believe, in the Cape Caves, and in shell mounds at Bathurst, Albany.

Ostrich Shell Necklace.

I am informed that at the Diamond Fields, during the excavations for diamonds, the perforated pieces of ostrich shell used for necklaces were found, as also the minute chalcedony piercers or splinters used, even at the present time, deep in the crater of the mine itself.

Arm-ring.

This is an unique specimen, found near Camperdown by Mr. Thresh of that place, near Maritzburg, Natal. It is of small size, and no European gentleman can put it on; ladies and several *coolie men* could however wear it. The question arises, whether it was made as a female ornament, or was

worn by a chief; if the latter, it would indicate a small-boned race. It seems probable that the antiquarian relics to be collected in South Africa, in conjunction with anthropology, will largely help to indicate the collateral origin of the aboriginal tribes here, with those of West Central Africa and perhaps Polynesia.[1]

This specimen is of indurated shale. (*See* fig. 2, Plate VIII.)

Rosette.

Amethyst quartz.—Found with other things at Red Hill railway cutting, in blown sand, Victoria County, Natal. At first sight I put this down as a *core*, but subsequent examination and its symmetrical finish and colouring seem to indicate that it was an ornament. I found no trace of any chips in the deposit where it was that in any way could bear out the idea of its having been a *core*;—that it might have been the tooth of a war-club is possible,—as see my remarks on *cores*.

Amulets, or Toe and Finger Rings.

Mr. Sanderson has in his collection, and I believe has exhibited them to the Society, some segments of rings, too small for anything but use as toe or finger rings, or amulets to suspend at the neck. The latter supposition is the most favoured, as the section of the rings is flat and discoidal, evidently ill-adapted to being worn on the toes or fingers. I have not seen a complete ring, but there are sections of several. They are all worked carefully in similar indurated shale to that of which the arm-ring from Camperdown is made. These fragments have all occurred in drift sand, round Durban, Natal.

Ear-Ornaments.

In "Journal Ethno. Soc." Vol. II, 1869–70, p. 39, a polished stone disc of small dimensions is shown, natural size, from South Africa. From its appearance, I think the view expressed by Colonel Lane-Fox at the meeting, that this was an ear-button, is possibly a correct one; but it also seems quite as possible that it may have been a disc to be worn in the upper or lower lip, similar to the ornaments used at the present day by tribes in West Central Africa, with whom it would not be surprising to find that this pre-historic polished stone race of South Africa may have been allied.

[1] In the "Trans. and Proceedings of the Ethno. Society," 1869, is a description and drawing of a stone arm-ring sent from Lukiza, on the Niger, by Mr. Warren Edwards, H.B.M. Consul there; it tallies very closely with my specimen, and suggests a common origin of the people who have used or made them. The type in ivory and even in iron and copper is not uncommon.

CLASS B.—WEAPONS OF WAR AND THE CHASE.

1. War Clubs.
2. Celts.
3. Javelins.
4. Lance, Assegai, or Arrow-heads.

Axes, *see* "Domestic Utensils."
War Club Teeth, *see* "Cores."

1. WAR CLUBS.

Quoit-shaped Weapon (*Fig.* 3, *Plate VIII*).

As far as I am aware, the African specimen now on the table is unique, and the most finished stone-weapon yet discovered there.

It is of indurated shale, and symmetrically worked and polished. It was discovered at a considerable depth in blown sand, in the Red Hill railway cutting, Victoria County, Natal. I consider from its form that it has been intended as a weapon of offence, and I do not think it was mounted on a handle, because one portion of the periphery has been flattened so as to admit of its being firmly grasped in the hand, which it fits very comfortably, and thus held, to have been used in striking forwards and downwards, so as to inflict a severe blow calculated to give a quietus to an adversary.[1]

If however it has been mounted on a handle, it would resemble the wooden mushroom-headed weapon from the Dor tribe exhibited in General Pitt Rivers' (Colonel Lane-Fox's) Collection, No. 371.

I may recall the fact that mushroom-headed clubs in *wood* are also known from New Caledonia, New Guinea, and Australia.

On the other hand, its sharp edge and apparent fashioning to the hand, are suggestive of its use as a sacrificial instrument similar to that used by certain Polynesians.

Sir Theophilus Shepstone informed me that he remembers to have seen another specimen of this type, found likewise on the coast lands of Natal, but he quite forgets where, or in whose possession.

War Clubs. Usual Forms.

Throughout the greater portion of South Africa, reaching from Cape Agulhas in the south to the Transvaal in the north, occur

[1] It is thus that the Maori "Meri" is used in New Zealand, the object being in attacking an adversary to prod or strike him heavily behind the ear or under his jaw.



Fig. 1.
$\frac{1}{2}$







Fig. 2.
$\frac{1}{2}$



Fig. 4.
$\frac{1}{2}$



Fig. 3.
$\frac{1}{2}$



West Newman

S. African polished Stone Implements & Ornaments.

round stone implements perforated and fashioned into a globular form. To my mind these were all fashioned for the purpose of use as clubs, to be mounted on a stick thrust through the perforation, and secured by wedges and by hide something in the same manner as that described by Schoolcraft as adopted by the Algonquin Indians of North America.

I am aware that it has been received as an opinion that they were only intended as *weights* for the purpose of assisting the aborigines in digging for roots, on which they feed at certain times. In the Christy Collection is a stick so arranged with the prong of an antelope-horn at the point, and I have heard of many instances of their present use in this manner among the Hottentot and Bushmen tribes in Cape Colony. I believe, however, that the aborigines using them *now* are only utilising the stones fabricated by their predecessors for a different purpose, as I can find no record of any native being found able to make a similar stone. It is asserted that they still do so, but Commandant Bowker, who was stationed in Basutoland, where they are reputed to be made, for many years, made very careful inquiries, and only discovered one old woman who was said to be able to make them, but who, when brought to him, neither by entreaties nor by offers of the most seductive presents, could be prevailed upon either to make one, or to say how they could be made. Consequently the Commandant put her down as a "*take in*," and considered that the present fabrication of these stones is unknown.

It is also a fair inference that had they originally served the double purpose of "Digging Weight and Club," even if not invented, but only adopted by the Bushmen tribes (who now only use them as digging weights), these tribes when adopting them would have equally mastered and continued the method of their fabrication. This as we see is not the case.

The inquiries of Dr. Bleek, of Cape Town, among the Bushmen on this subject, led to no more definite result, they being utterly unacquainted with the method of their manufacture, although they were aware of their use as weights for digging-sticks. In any case, I believe they have only been employed secondarily as digging-stick weights, and primarily were undoubtedly club-heads; as such I here deal with them.

Their general character is very similar. They may be classified in three forms:—

1st. The full-sized, weighing from 5 to 7 lbs., which is found from the Cape to Natal, of globular form, and fashioned in all classes of material from quartzite down to shale.

2nd. A small form weighing from 2 to 3 lbs. which instead of being globular, is angular, like a perforated disc of thick

dimensions; of this form is the specimen used as a digging-stick weight in the Christy Collection. I have been told of quite minature ones, which seemed to be toys or amulets, also of this form. (Fig. 1, Plate VIII).

3rd. A small form weighing about 2 lbs., globular, and occurring in many materials; much less abundant than the preceding.

The first is what I should properly call a *War-Club*, the two latter more closely approximate to the Knob-kirris and Kaffir throwing-sticks of to-day. The distribution of these perforated stones is universal in South Africa. The most prolific site is Kalk Bay, near the Cape of Good Hope, where they occur in dozens. Thence, through the Hottentot Mountains on to the Upper Veldt, and through the Stormberg, northwards to the Drakensberg chain, they are found in fair abundance. The great centre of their occurrence is undoubtedly the mountain ranges, but they are also found more sparingly coastward.

The materials from which they have been formed are of every character, sandstone, metamorphic rocks, schists, and indurated shales being all used.

In each case they appear to have been perforated in the same manner, by the boring of a conical hole from each end of the axis of the stone, which holes meeting in the centre create an irregular perforation.

The method of this perforation I think has been clearly worked out by Mr. Dunn of Cape Town, who has collected a large series, many of them unperforated, and others in different stages of completeness.

The *modus operandi* appears to have been to select a suitable stone, which was dressed down by bruising or chipping into a spheroidal shape, generally flattened considerably at the poles, and also sometimes with a prominent ridge equatorially; the surface being ultimately smoothed by hammering with a pebble, or by polishing, if of shale, as in Natal specimens; and possibly even by rubbing in the mortar-shaped stones often found with them.

The perforations are then commenced at either pole, by picking, for which purpose metamorphic and igneous siliceous flakes and worked weapons were used. This part of the process is beautifully shown by an example in Mr. Dunn's Collection, which was perforated only to the depth of about three-quarters of an inch at one end, and on the sides of the perforation the pick-marks, at a slight angle, were very evident. After considerable time and patience, and no doubt many picks had been expended, in perforating the holes from each end, they met, more or less medially, in the centre of the stone. The last operation seems frequently to have been to punch out the

remaining piece between the two holes; the point of their junction being often an irregular cavity, as if knocked out by a punch.

The perforation complete, the next operation was to smooth it and make it parallel and fit for the reception of a handle. This was done by rimers of indurated shale. There are here shown specimens of both the picks and the rimers. (Figs. 8 and 9, Plate XI).

It was reserved for Mr. Dunn to discover this fact; as he first noted the abrasions on the arrises of the rimers and their adaptability to the purpose, as also their continual presence associated with the perforated stones where most abundant.

In Natal, although I have seen several clubs, I have not seen a *rimer;* but elsewhere they invariably occur in conjunction.

As might be expected, many of the stones found are incomplete, having either been lost or cast aside as of a texture too hard to yield satisfactory results.

There is a still further suggestion as to the use of these stones, which Petherick's note of a javelin for elephant killing, raises, as used by Dor tribes of the Nile.[1]

He shows a javelin with a heavy iron weight at the butt-end, which was thrown from the trees into the bodies of the elephants as they passed under, the iron giving an impetus in the descent, which enabled the javelin to pierce the thick hides of the victims. As the whole of South Africa, historically, was prolific in large game, it is possible that these weights have been used in a similar way, for a similar purpose.[2]

2. Celts.

In using this term I refer to all weapons having an apparent edge throughout, admitting of use at either end, and having neither a specially developed and pointed end, such as I place under the head of javelins, nor a rounded well finished butt-end with keen edge, which I describe as chisels or axes.[3]

I am not aware of any specimen of a true *polished* celt from South Africa. The nearest approach to one is the doubtful

[1] Petherick "White Nile."

[2] Livingstone, also speaking of hunting by Sekeletu's people, 23° 40′ 30″ E., and 14° 11 3″ S, says:—

"Another method is by means of a log of wood having a poisoned spearhead inserted. It is suspended on a branch above the elephant's path by means of a cord, which again is secured to a small wooden catch on the ground; when the catch is touched by the elephant's foot, the beam falls on to his back, and the spearhead remains: the poison does the rest."

May this system not equally apply to a weighted javelin, as above?

[3] This form corresponds with the oval type of river drift palæoliths of Europe.

specimen here shown, which bears a resemblance to a not uncommon European type. It was found in a very exposed position, where the surface of the associated chips, &c., was much corroded by the force of the wind-driven sand; the surface gives no clue to any original polishing, as all "striæ," if they ever existed, have long since disappeared, and I only notice it on account of its symmetrical shape, and its association with numerous other chips and fragments.

There was also described by Mr. Layard (former Curator of Cape Town Museum), at the Anthropological Institute Meeting, December 13th, 1870, an axe of hard black stone, several specimens of which came from Tulbagh District, in Cape Colony.

I saw these specimens in the Cape Town Museum, and certainly consider them to be natural stones waterworn to their present shape. I exhibit one of a similar class, from the Eastern Province, but if ever it has been mounted as a pick or an axe, it certainly does not seem to have been *fashioned* for the purpose.

In Natal occur large quartzose examples of a type till now peculiar to that Colony, of an irregular elongated oval form, not particularly pointed at either end, and with a blunt cutting edge or periphery, showing very rough powers of fashioning. The edge is upon an irregular plane. (*See* fig. 3, Plate X).

Two examples are on the table. They approach the oval palæolithic type of Europe, and occur in the oldest deposits in which I have noticed implements in Natal. They suggest the idea of having been used, either mounted like *celts*, or else held in the hand, thus serving to break bones for extracting marrow, or for similar pounding or cutting purposes, in which an edge, although obtuse, would be of service. In the Cape Town Museum are some roughly hewn implements from the Eastern Provinces of the Cape Colony, collected by Commandant J. H. Bowker. I have no specimen. They show a tendency to a point at one end, and approach a javelin form. They have a rough irregular peripheral edge upon one plane, and are somewhat compressed. One from Natal is figured as fig. 6, Plate X.

3. JAVELINS.

Under this head I class those implements which are fashioned to a distinct point at one end, and with cutting edges on one plane; which are carefully wrought towards the points, but have not been so much worked at the butt or thicker end, which indeed is sometimes truncated abruptly.

The examples to be noted are:—

1st. Those found in the Neolith camps, Cape Flats.
2nd. Those from the Eastern Provinces, Cape Colony.
3rd. Those from Natal.

Specimens of each are shown :—

1*st. Those from Cape Flats* are exceptionally well-finished, and in common with the general products of this district display a skill in working which equals that of European and American specimens. They are often found half completed and more often damaged by use, as also in a preparatory rough state. Specimens of broken ones, either the tips without the body or the body without the points, are common, implying fracture in use. Some such are here shown. The forms vary, from a long narrow leaf shape with a delicate point, to a broad flattened ovate; but always presenting very symmetrical edges and keen point, and the upper and lower surfaces usually equally worked or bellied. Very rarely, only one side is worked and the other shows the surface fracture of the original flake. I have several times noticed a tendency to a rotation of the planes, whether accidental or intentional is uncertain. (*Vide* Note, p. 135.)

Implements of the excellent workmanship which these display have been till now only found on the Cape Flats. Such others as are perfected to any degree, occurring more to the north, fall far short in their finish. There is a specimen in the Christy Collection, doubtfully ascribed to the Walwich Bay District on the west coast, which approximates to the Cape Flats type more nearly than any others I have seen. (*See* figs. 1, 2, 3, Plate IX.)

2*nd. Those from the Eastern Provinces of Cape Colony,* one specimen of which is on the table, and others I have seen in the Cape Town Museum and in Mr. Dunn's Collection at the Cape, are fashioned symmetrically by coarse chipping to a point; the butt-end being generally abruptly truncate, and the edges, although irregular, placed upon an even plane; while the section shows a more lumpy implement than those of the 1st type, and more pear-shaped. They are usually fashioned from metamorphic rocks or trap (greenstone).[1] (*See* fig. 1, Plate X.)

3*rd. The specimens collected in Natal,* which appear by the deposit in which they occur to be of considerable age, are much corroded by iron rust. They resemble the Eastern Province

[1] I have seen three specimens in Mr. Dunn's Collection. They are found in the Cape Town Museum, one of which was described and figured in the "Ethno. Society's Journal," Dec. 13, 1870. I exhibit one from the Eastern Provinces. And by the kindness of Sir Joseph Hooker, I have on the table a specimen approaching this type in the art displayed in its fabrication, but being unique in having only one face of it chipped, the under face being the flake face.
In the Blackmore Museum is another specimen from Kleinomond, near Cape Town.

type preceding, and are pear-shaped, but they do not display so great a facility in shaping, nor are they so symmetrical.

Those exhibited were found on Smerdon's Flat, Victoria County, Natal. (Fig. 2, Plate X.)

These javelin-formed implements occur sparsely all along the Cape and eastern coast lands. I have not heard of any from the Berg and inland district, but there seems no reason to believe they should be wanting there.

Whilst those from the Cape Flats assimilate to the Danish types in flint, the others approach our unground pointed or pear-shaped palæoliths of Europe; and their evident similarity in type to those from the "Laterite" of India, and the occurrence of the Natal specimens in a bed, at all events closely allied to the "Laterite" in its character, are facts highly suggestive. Altogether the number collected over a large area quite establishes the type as South African.

4. ARROW-HEADS AND LANCE-HEADS.

I use these terms for the purpose of classification, and not at all from any dogmatism as to the use the weapons may have served. In most cases the terms may not be accepted literally.

It should be borne in mind, that at present two separate types or *races* occur. The older, Bushman, type being well acquainted with, and always using, the bow; the later or Kaffir (Zulu, &c.), discarding the bow and using the javelin, assegai, or lance for throwing. Between these there is a great racial distinction, and the older is fast dying out, so that the bow-using-races are now becoming less numerous in South Africa.[1]

The Kaffir races seem to have spread down the coast lands on the east, the older Bushmen being confined to the west and more desert tracks and to the mountain fastnesses of the Kathlamba.

For the convenience of classification, which also I suspect indicates their *palæological* position, I subdivide these implements according to their apparent age and finish, into—

NEOLITHIC.

Type *a*. Polished; and carefully finished throughout in indurated shale-stone; lanceolate form, flat and very sharp edges; small assegai or large arrow.

Littoral District.

[1] On the first arrival of the Portuguese at Natal, mention is made of tribes on the coast who used "a long bow" and darts. The long bow (except in the form of bounce) is not now known in South Africa.

Type *b*. Chipped; carefully wrought arrow or lance-heads; fashioned by chipping to a point at one or both ends, and with keen regular edges upon a plane which sometimes is slightly rotating and at all times geometrically true. Surfaces throughout "chipped," not ground; chipping very minute, and general form very symmetrical.[1] (Figs. 4, 5, 9, Plate IX.)

Cape District.

Type *c*. Chipped; arrow or lance-heads fashioned to a point at one end only, with keen regular edge and with one face carefully chipped, but the other, on which the bulb of percussion occurs, and is usually very evident, is formed by the original fracture of the flake. These implements have nearly always a rotating plane which seems intentional. (Figs. 6, 7, 8, Plate IX.)

Cape District.

Type *d*. Trimmed, only at the edges. Arrow-heads, both faces of which are formed by the original flake, with no surface chipping, but with symmetrical form and point obtained by edge chipping, more or less coarsely manufactured. (Figs. 1, 2, 3, 4, 5, 6, 7, Plate XI.)

Universal; Cape Berg, Overberg, Uplands, Littoral.

PALÆOLITHIC.

Type *a*. Of sub-triangular and regular form, made from suitably chosen materials of siliceous character, either metamorphic or eruptive, and often from trachytic rocks. The cores seem to have been prepared, so that the flakes for arrow or lance-heads when struck off are very symmetrical and often of considerable size.

[1] I find that Colonel Lane-Fox also called attention to this phenomenon in a discussion on some implements from this district at a meeting of the Ethno. Society, Dec. 13, 1870. I am quite prepared to find on further examination that this was an intentional method of fabrication for assegai heads, to be used for long flights. I am strengthened in this feeling by remarking that in the carefully chipped arrow-heads from this district, where one surface of the flake, that on which the bulb of percussion shows, is left, and the facetted side only trimmed, the outline of the arrow form is not symmetrical with the axial line of the bulb of percussion, but at a slight angle, so that the surface of the plane side of the arrow-head is "bellied on a twist," which in its passage through the air undoubtedly causes rotation, and thereby gives greater accuracy in aiming and longer range of flight. I have noted this on so many examples that I feel sure it was intentionally done.

These occur chiefly in the more recent diluvial deposits and in all alluvial ones.[1]

Uplands, Littoral, Cape Berg, Overberg.

Type *b*. Flakes of coarse material, grit, indurated shale, quartzose and trachytic rocks, approximating to arrow and javelin-head forms and types found in more recent deposits.

Bulb of percussion always visible.

Found in diluvial strata of Quaternary age.

Uplands, Littoral, Natal.

NEOLITHIC.

Type *a*. The only specimen of this class is that on the table: it was found in drift sand at Avoca, Victoria County, Natal, and is very symmetrical, flat, and with the edge and point very carefully finished. It was associated with other neolith weapons, in chalcedony and jasper, of type *d*, and is made of indurated shale. It seems probable that this may have been used as an emblem of office.

A recent specimen of Bushman arrow from the Christy Collection in this same material approaches this type, but has *tangs*, which are here wanting.

Types *b* and *c*. These two classes have only occurred on the Cape Flats, except one I exhibit from Smerdon's Flat, Natal, and they are therefore very local. They are chipped out of a chert of variable texture, a rock of tertiary age, which occurs *in situ* near to the place where they are found. As I did not visit this bed of rock, I do not speak with any certainty as to its geological age.[2]

From the number of specimens I have seen, I should judge that these two classes were coeval, and that it was an accident of the constructor's fancy, or the stone chip he had selected to work on, as to whether both or only one side were finished. It is instructive to notice the similarity of type with those found in Europe, and elsewhere, as demonstrated by the accompanying specimens.

The sweep of the edges, the perfection of the cutting edge, and the symmetrical convexity of the two surfaces is often

[1] As a connecting link between neoliths and paleoliths, type *a*, and found with them, is a large series of quartz arrow-heads, usually of small size, and not bearing strong evidence of any skill in workmanship. The types of form are very numerous, and were apparently almost dictated by the flake of quartz operated on.

They are abundant in Cape and Littoral Districts.

[2] Mr. Dunn, of Cape Town, who has been employed professionally as geologist by the Cape Government, is my informant on this point.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.



Fig. 9.

Worked **Stone** Implements from Cape Flats & Natal.

West Newman & Co. lith.

very striking. It does not seem that any distinct uniformity of size or shape was attempted; I have not even any two specimens of exactly the same shape or size, but the unity of idea is very marked. (*See* figs. 4 to 9, Plate IX.)

The passage from the *unworked* to the *worked* type is not well marked as a fact of time, it being a method apparently introduced all at once, rather than one gradually arrived at. This conclusion is not an easy one to defend, but the collection of every available chip upon the site of the best factory during three or four visits, and careful searches, show such a paucity of intermediate forms, that this explanation seems necessary; for had the later forms been the outcome of a progress in art manufacture, the refuse and first attempts and intermediate forms should at all events exceed the finished forms in number, which does not seem to be the case. This, in conjunction with the apparently distinct localisation of this method of working, suggests a late ingrafting of a new method from the outside.[1]

I think it quite as convenient to group together all these weapons in the same category, as I believe them to have been weapons of offence, *primâ facie*, having served a *secondary* purpose as cutting implements for domestic purposes—as now found among the Kaffirs with regard to their assegais.

Associated on the Cape Flats with these types, are weapons with coarsely serrated edges (fig. 5, Plate XII). These may have been flakes trimmed to the full amount of skill at that time possessed, or they may have been only wastrels of the higher type thrown away as useless: they are of quartzite. I think it well to mention them, as they may be the first efforts of a higher art, and if so, properly come in this place chronologically. Passing on to the true secondary type—

Type *d*. This is universal, and constitutes the only neolith type of arrow-heads throughout South Africa generally. The specimens, without exception, appear to have been made from a chalcedonic, jasper or cherty core, and are worked into two distinct forms, which are associated in deposits of quite late date.

[1] Many of the weapons chipped on both surfaces, although very small, are double ended, and are of the types figured by Evans, "Stone Imps. Great Britain" figs. 289, 290, 291.

These possibly were knives and cutters, not arrow-heads only. They are placed by him under the head of "leaf-shaped" arrow-heads.

I have seen from the Cape Flats examples answering to his figures.

273, 274, 275 javelin heads.
280–1, 2, 3, 4, 5, 6 leaf-shaped.
289–90, 91, 92 leaf-shaped.

The solitary example from Natal approaches the type of his fig. 285, but is not quite so elongated.

The most highly finished form is leaf-shaped, very wide, with an acuminate apex called, botanically, ovate-acuminate; and is even now in use amongst the Koranna and Bushmen. (Mrs. Barber's authority.) (*See* figs. 4 to 7, Plate XI.)

As a rule they are small, and often *minute*, as the specimens will show. From their peculiar shape, calculated to give a broad but shallow wound, the use of poison would appear to be indicated, and in actual fact occurs amongst the few Bushmen who survive at the present day.

These implements are fashioned from flakes by *edge chipping*, but I have not seen any bearing *surface* chipping. The type is abundant throughout the Berg and Upland Districts.

A second form is sub-triangular, with parallel faces, but with the point sharpened by chips having been taken off; and there is an intermediate shape which is still triangular, but with a truncated apex with a similar intention of producing a wide wound, as in the first case.[1] (*See* figs. 1 and 3, Plate XI.)

As closely allied to these weapons, which bear very distinct evidence of fashioning, and are formed from material fairly facile to work, come a large number from glassy or milky quartz.

I have never failed, in any deposit of a later age which I have examined, to discover a considerable number of quartz weapons, and they are associated with every preceding type. But it is evident, both from the known structure of this mineral and from the appearance of the instruments found, that it has proved refractory to work, and has therefore never been very largely employed. (*See* fig. 4, Plate XII.)

This class, from the point of view of its occurrence, and from its workmanship, forms a sort of connecting link between the neoliths and palæoliths as before determined, being found associated with both.

The types of weapons in quartz are very numerous; they are well displayed on the table.

The varieties of the mineral range from glassy quartz to almost a chert.[2]

[1] For Commandant Bowker's remarks on these forms as developed in the Basutuland "Cave Shelters" and their vicinity, *see* note "Cave Shelters," p. 153.

[2] To compare with the foregoing arrow-heads are drawings of recent Bushman arrows from the Christy Collection. The slate one is interesting as closely approximating the neolith first mentioned, and two glass ones are remarkable from the use of a resinous substance to attach the shreds or splinters of glass bottle of which they are made, to the point of the arrow.

There is one shown in my collection from Putilis Location, Natal, made of steatite, which does not apparently illustrate any earlier form, and which was used within this generation. It was given me by Mr. R. Mellersh, M.L.C., Klip River, Natal.

PALÆOLITHIC.

Types a and b.

This distinction of type is perhaps only fictitious, but the evidence in the deposits points to the earliest attempts as being very rough and partially haphazard in their results, whereas the later weapons are of better material and the cores more carefully chosen, and more carefully worked, proving that experience over a greater or less term had led to more perfect results.

Type *a*. In all cases these are from a metamorphic core, often of the highest siliceous character, and with a fracture and lithological composition almost equal to flint. The material varies, and some, even of *the earliest*, have been brought a long distance; but that used is generally to be found *in sitû*, near the locality where the implements occur.

They vary in size, and in all cases are struck off from cores by a simple blow, the bulb of percussion being very evident. They are long leaf-shaped or sub-triangular, with one or several facets. Those from the Free State seem to be of the latter class, and those from Natal generally the former. Whether this difference arises from the material in Natal offering larger cores, and so giving a longer flake, or from the intentional impact being different, it is hard to say.[1] (*See* figs. 1, 2, 3, 4, 6, 7, Plate XII.)

A large variety of specimens illustrative are here displayed, showing the range of form occurring.

Type *b*. This series comprises all those of the very rudest fashioning, in grit and quartzite; *evidently* the earliest attempts to produce artificial results for a special purpose. These in all cases occur in deposits, geologically, of the quaternary period.

The forms are very variable, and it cannot be said that any one type can be specified; so much so, that it is impossible to say that the implements are specially arrow-heads or otherwise. I have not failed to find these wherever I have seen a section of the earliest diluvial beds. They are often associated with flakes in trachyte and quartz, which are equally of the rudest workmanship.

[1] Those from the Free State are often "touched" at the edges so as to make them more symmetrical in shape.

Where this is the case, it seems probable that those people who so neatly chipped the scrapers from this District, brought their experience to bear upon flakes already fashioned into rough arrow forms. I have, in support of this opinion, never seen any trimmed arrow-head, showing such age by the thickness of its crowded or oxidised surface, as the simple flakes themselves did.

I have here arranged a few of these forms most allied to weapons; they are clumsy and heavy, as might be expected from the coarse nature of the grit and quartzite used. (*See* fig. 6, Plate X, and fig. 4, Plate VIII.)

CLASS C.—DOMESTIC UTENSILS.

We must consider those implements in stone which are not immediately associated with defensive or offensive action, but which by their character and shape suggest their use in different ways as domestic instruments. By their examination, some opinion may be formed of the mode of life which obtained among the races by whom they were used, and of the history of their advance towards civilisation.

1. Axes or Adzes.
2. Hammers, Pestles, Mortars, Arrow Straighteners.
3. Mullers, Braders, Scrapers.
4. Knives, Saws, Phlems.
5. Chisels, Gouges, Picks, Rimers.
6. Wedges.
7. Moulders.
8. Piercers, Awls.
9. Pottery.
10. Boiling Stones.
11. Cores, &c.
12. Human Remains.

No. 1. *Axes and Adzes.*

The implements apparently adapted to serve the purpose of an axe or adze, of which I have made any note, are:—

1st. Two specimens in Mr. Dunn's Collection at Cape Town, drawings of which are on the table. They are carefully sharpened on the butt-end, and one of them has very strong signs of abrasion on the edge, the striæ being concentric as if the implement had been used for severing. As both of these specimens are well fitted to the hand at the apex, having a distinct lodgement for the ball of the thumb, it seems they were not mounted in any handle.

They were found by Mr. Dunn at the Stormberg, Cape Colony, when geologising. I consider them to present a distinct type.

2nd. In the Cape Town Museum, collected and presented by Commandant Bowker, of King William's Town, are several large flakes, struck off basaltic blocks, 9 to 10 inches long by 4 wide, and comparatively thin. One especially is very typical,

and suggests at once its use as an axe or adze *mounted.* I have only seen this type from the Eastern Provinces, Cape Colony.[1]

3rd. On the table is a weapon which has been trimmed to a cutting edge and point, but of which the butt seems to have been fractured. It has the character of an implement which might have been used as an axe, held in the hand.

4th. I have seen a good many implements of a smaller shape, like that of a small wood axe; they suggest by their form the intention of cutting, and were probably mounted with resin. There is a specimen on the table. I think this type is not very well asserted. (Mounted probably like the chisel-ends in the Christy Collection).

No. 2. Hammers, &c.

Pebbles so often present the requirements naturally suitable to their employment as hammers, that aboriginal tribes seldom really fabricated an implement of this sort, and I have not seen any specimen of worked polished stone which can be described as a true hammer. The more usual forms are—

a. Small and irregular perforated stones.

b. Pebbles chosen for their shape, and with worked depressions on one or both faces, for holding between the thumb and finger when in use.

c. Pebbles, serving other purposes, as arrow-straighteners, &c., but the ends bearing evidence of their use as hammers.

d. Small rounded pebbles, for flaking.

e. Irregular flat hard stones perforated in the middle.

a. This type practically is included in the clubs already spoken of, but as many specimens of these were small, it seems probable that as well as being used as mere "kirri," or knob-sticks, they also served the purpose of hammers.

Same localities as the club stones.

b. These are not uncommon—Mr. Sanderson of D'Urban has a hammerstone of this type which has not only depressions on each face, but which shows two indentations on its edge opposite each other which are more depressed towards the inner face when the stone is held between the thumb and fingers in the hand for use. These indentations are probably the effect of use and the constant impact in one direction. The centre of gravity of the stone when held suspended for striking would cause the blows always to fall upon the same spot in its periphery.

It has been suggested that they were indentations to receive

[1] These were probably mounted.

a withy handle, but I do not think this view is applicable. This is the only type in which I have seen the edge marked.[1]

c. Of this type I have only seen specimens from the Bushman Districts—the upper lands of Cape Colony,—none from Natal. As they are described under the head of the other uses which they have served they need no remark here.[2]

d. These little pebbles are abundant over the Cape Flats, associated with flakes, and Mr. Dunn has in his collection some nearly spherical stones, used for this purpose, from the Stormberg, and higher districts of Cape Colony. I have not seen examples from Natal.

e. In the Cape Town Museum is an example of this type. It is a thin, flat irregularly oblong stone with a perforation in the centre. I notice it here among the hammerstones, although there seems reason to believe that it may have served some other purpose.

The perforation consists of two conical depressions meeting in the centre, which causes a sharpish edge at their junction. Either this is unfinished, or it certainly was not mounted on a stick, as the edge is too sharp to allow of this successfully.[3]

Arrow Straighteners.

In use at the present day, and often to be found with other stone relics, is a roundish oval stone with a straight groove lengthwise on one face. This is used to straighten bone and reed arrows, by heating the stone red-hot, and placing the arrow-shaft in the groove, then rubbing another hot pebble with pressure up and down it, and so taking out the twist of the reed.

[1] On the table is shown a hammer of stone of this form sent from Natal to Sir Joseph Hooker, who allows me to show it here to-night, by Mr. John Sanderson of Durban "as a specimen of a stone hammer used in the manufacture of iron assegai heads," by the Kaffirs of to-day, found in the Berea River, Natal.

This implement is therefore hardly to be included as belonging properly to the "Stone Age."

Mr. Sanderson makes mention of these in his paper.

[2] In the British Museum Collection is a double-ended hammerstone, formed from a long pebble, which is battered at each end. It seems to have been a muller, or perhaps the first stage of forming a muller by flattening its ends by use as a hammer.

[3] It is one of three found at Roudebosch, Table Mountain, by Mr. Smidt, the Surveyor-General of Cape Colony, "when excavating, to put in the beacon of a survey, under the roots of an oak tree, at least four feet below the surface."

One of these is above described. Another belonging to this Society is on the table, and the third is also, I believe, in England. The occurrence of three together, and their peculiar form, makes me think they served another purpose possibly. I have seen a specimen of this type from the Berg District.

This type is often combined either with a hammer use, or with a muller at each end for rubbing pigments, poisons, &c.

The example shown has the simple groove, without any supplementary purpose, except a hammer possibly, being served by the stone. Mr. Dunn's Collection presents a specimen combined with a muller at *each* end.

Pestles.

I have on the table a round pestle-shaped stone, found by me at the Cape Deposits, which has been used probably for pounding; it is a naturally formed stone, and has not been improved by fashioning. I have seen two or three similar ones.[1]

Mortars.

These are not at all rare throughout South Africa, either recent or pre-historic. I have here a small indifferent specimen, but they are much larger, and better fashioned in general. The large ones were probably for bruising or pounding grain, as now used by the Kaffirs; the smaller ones, with more longitudinal depressions, for grinding paint or snuff.

The Kaffir women of to-day often spend many months in fashioning out the hollow to a particular curve, by beating with stones in the hand. Dr. Sutherland, of Natal, once watching the slow progress made by an old Kaffir woman at a kraal where he had passed the night, sought to teach her the much more rapid progress which an iron-pointed tool would make, and by a few blows on the stone she was working, expected to have earned her gratitude, but was only met by indignation, as she vowed the stone was spoilt by him, and despite his arguments and explanations ruefully returned to her work, and sought to eradicate the damage he had done.

Although taking long to accomplish, the surface of the hollow thus formed is very smooth and uniform, and quite fit for the crushing of corn, and it is much to be doubted if the natives could *finish* a curved surface with an iron instrument so well as they do with stone. The idea of expediting their work by beginning the hollow with an iron pick, is one not to be entertained. This is an instance of the Stone Age of to-day. The pre-historic examples do not give me the idea of having been worked preparatorily into a hollow, but rather that continued use had formed and increased the hollow, till worn through or broken.

[1] There are two natural stones from the Cape Flats in the Collection of the British Museum, evidently to be described under this head.

Dr. Dale, at Cape Town, showed me one specimen, worn through on one side at the bottom, and very boat-shaped, the sweep being very long and very narrow. This is the tendency of those I had seen; whereas the Kaffir forms of to-day are much more uniform and bowl-shaped.

No. 3. Mullers, Braders, &c.

The mullers are in all cases hard, selected siliceous stones. Several specimens are shown. They are very abundant in many places, and are distributed through the same regions as the club-stones. They vary in size according to the uses to which they were put; in all cases but one, the face is at right angles to the centre of the stone, and the edges are rounded as if the stone when used had oscillated a little in its work. A type, however, which Mr. Dunn showed me, and of which I have a drawing here, had the plane of the rubbing face at an acute angle with the axis of the stone, which was long and flattened, showing that in use the stone had been held at an angle. These stones are of a material approaching that of *hone*-stones, and were probably used for mixing poison or paints on flat pieces of slate, which often occur showing evidences of such use.[1]

A large double-ended stone, of very hard material, is to be seen in the British Museum Collection; by its length, and the polished surfaces of its worn ends, it appears to have been used as a muller or mixer for substances where extra pressure would be required, or where more careful mixing was necessary.

From Basutuland, in Mr. Dunn's Collection, I saw a very neat little chipped muller of limestone, used recently for mixing paint, &c. It is something like a conical bullet in shape.

Braders.

These, of fine and somewhat soft sandstone, are found frequently, and even at the present time are used to finish the surface of skins. I am not aware of their occurrence in Natal, but they are found on the New Veldt and Orange River.

Polishing Stones.

For the purpose of finishing other stone implements, such as the arm and thumb-rings, and the disc shown, these stones are so far rare, but are so liable to be overlooked that the few which

[1] In the British Museum is a specimen of the ordinary round pebble muller so abundant as a Cape type, which differs by having the rubbing face at an angle with the axis of the stone.



Fig. ½ 2.



Fig. ½ 1.



Fig. ½ 3.



Fig. 4.



½



Fig. 5. ½

Fig. 6.

West Newman & Co. lith.

tone Celts & Javelins, S. Africa.



Fig 1.

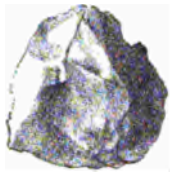


Fig 2.



Fig. 3.



Fig. 4



Fig. 5



Fig. 6.



Fig. 7.



Fig. 8.



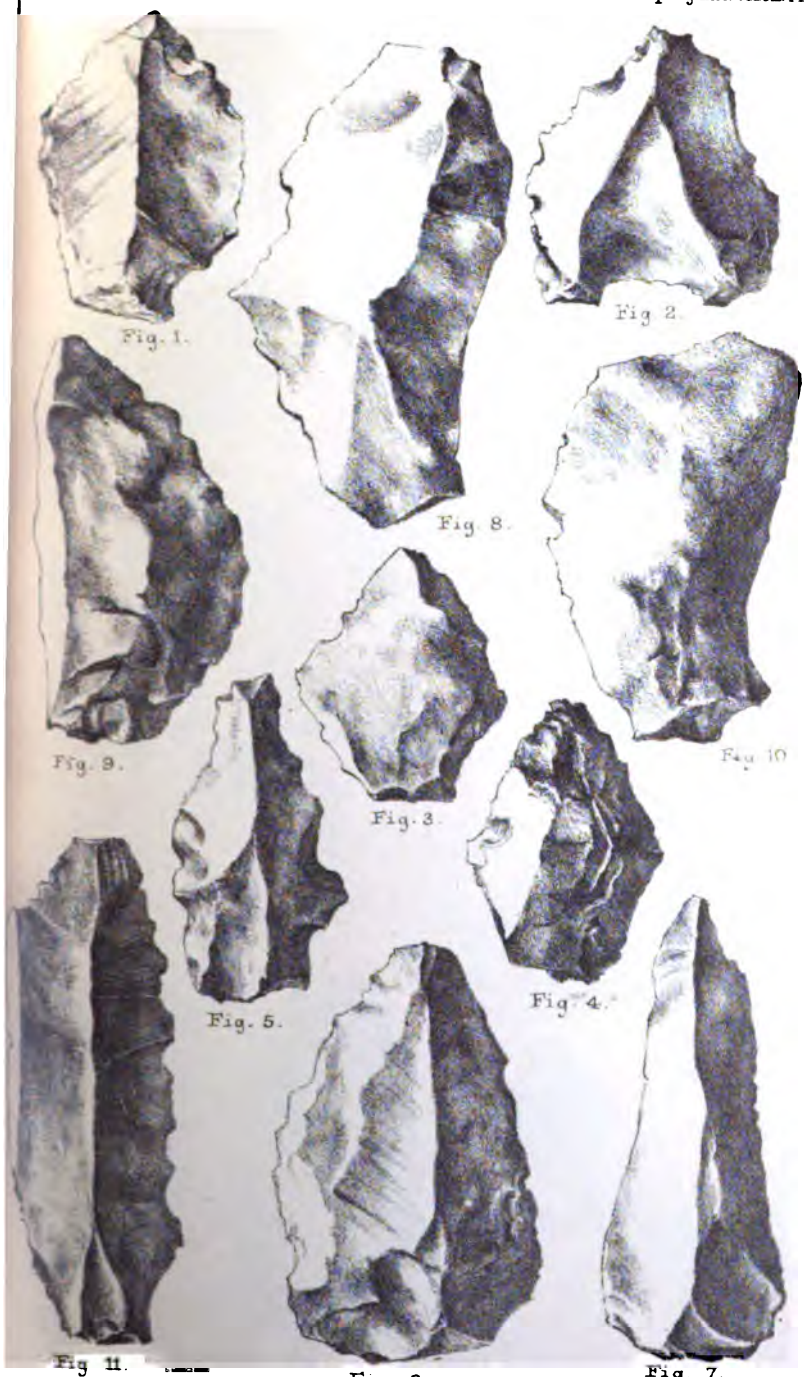
Fig. 9.



Fig. 10.

West, Newman & Co. lith

Stone Arrow-heads Pick Pitter & Gouge. S. Africa.



Stone Arrow & Knife Flakes, trimmed. S. Africa.



West Newman & Co imp

Stone Scrapers, Wedges & Saw, S. Africa.

have been noticed cannot be taken as representing their true occurrence. I have only seen examples from Natal. Mr. Sanderson of Durban has a very good one, which appears to have been used in fashioning the thumb-rings before spoken of as found by him. It is not only somewhat pointed and narrow, as might be expected, for polishing the perforation of the rings, but also shows a groove along one side, in which no doubt the periphery of the rings had been passed; it was found associated with segments of stone-rings.

I have also seen two other pieces of polishing slate showing grooves or surfaces which had been used for abrasion, and on the table is another piece which was found close to the Quoit from Red Hill; it has been used for a similar purpose. In all cases they are composed of close-grained blue indurated shale.

Dr. Dale told me of a rubber, which he found on the Cape Flats, which was a flat piece with a handle, worked out of stone: it is somewhere in England I believe, and had been used for some purpose. no doubt for mixing paint, &c., on a flat slab. It was the only specimen of the sort he had seen.

Scrapers.

These are formed from single flakes, struck off some suitable stone, and either used simply without further fashioning, or else, as in the case of a large series of examples from the Cape Flats and Overberg Districts of Cape Colony, trimmed further into form by edge chipping.

The rougher, many facetted and large untrimmed flakes, are very often so intermediate in form between knives and scrapers, that I have grouped a large series of them together.

They are of similar materials to those used for knives. The worked forms are flat ended (fig. 5, Plate XIII), concave (figs. 6, 7, Plate VIII), thin convex and rounded (fig. 3, Plate XIII), and tongue-shaped (fig. 8, Plate XIII.)

Scrapers occur most abundantly in the up-country districts, and there they are still fabricated for hunting purposes. The usual type is the tongue-shaped; this is generally thicker at the scraping end than the holding end, and is always carefully chipped (fig. 8, Plate XIII). Scrapers so fashioned represent the intermediate age in working, as the chipping is only from the edges, not superficial, nor have I seen a specimen of any implement associated with them which discloses any higher form of workmanship.

As they are still formed by the natives for present use, it would appear that the Stone Age here has never known a greater development.

Where these prepared scrapers occur in greatest abundance, it is to be noticed that antelope game, on which the native tribes chiefly subsist, is found most abundantly.

As might be expected, the cores from which the scrapers are struck off are equally diffused with the scrapers. The impact of the blow by which they were struck off was at such an angle that the point of the flake was much thicker than the end which was struck, and on which the bulb of percussion is seen.[1]

I have never found very well fashioned scrapers in Natal: many flakes evidently adaptable to the purpose occur, but the working of their edges is unusual.

The scrapers with chipped edges seem to represent the Cape Overberg and Berg Districts. A type of scraper (shown in figs. 1, 2, Plate XIII) is very noticeable; it consists of an ordinary scraper flake, but one edge is carefully excavated at one spot in a round notch, and appears to have been used for scraping up and rounding bone or wood arrow-shafts, &c. These excavations are of different sizes, and are sometimes made in a natural angle of the edge of the flake. These are from the Cape and Overberg.[2]

The use of scrapers is so varied, and the corresponding forms applicable to these uses necessarily so different, that it is difficult to classify them as for any apparent purpose. Undoubtedly the preparation of skins for clothing or adornment is a prime object.

Many of the longer tongue-shaped ones seem to suggest their use as spoons for extracting marrow, &c., and perhaps even for the scraping of the body (Grecian fashion, as with the strigil) after ablutions and severe exercise.

No. 4. Knives and Saws.

Saws, assuming a knife form, but with an edge roughened by chipping. There are only four; one from Natal coast, and the others from the up-country Overberg Districts, given me by Mrs. Barber. In no case do they present any very great amount of skill in notching, such as is seen in other parts of the world; and the term *saw* is only reservedly applicable to them. (*See* fig. 10, Plate XIII.)

In the British Museum Collection is a quartz knife flake from Fort Beaufort, with a finely serrated edge, which may have arisen from use. It is nicely fashioned.

[1] See my remarks under head "Cores."

[2] In the collection of the British Museum from the Cape Flats is a scraper flake, which has two carefully worked notches at one end separated by a long tongue. Dr. Dale, who sent it, says, "it was found deep, and has been used for rounding up sticks, &c." It is much corroded.

Knives.—Under this head I group the keen flakes of all sorts of material, bearing evidence of working, which occur in deposits. A very large number of them bear apparent traces of having been used, the notching of the edges being evidently the result of friction, and one or two notably have been broken and thrown away.[1] (*See* fig. 11, Plate XIII.)

The majority of flakes do not show any very definite attempt at a particular form, merely consisting of flakes of different lengths, with a keen cutting edge. The materials employed are of every description of chalcedony or quartzite, such as yield on fracture very sharp edges, and their distribution is universal.

Of those that show any attempt to attain a particular form, there are two very distinctly noticeable, to which I wish to call your attention, and which I believe to be associated with South Africa almost exclusively.

One is that of a rounded cutting edge, with a thicker and curved back and smallish butt, giving the idea of a saddler's leather knife. It occurs both right and left-handed, and I have met with it universally. The form is obtained by a peculiar fracture of the material used, and has been evidently the result of intention, not of accident.

I have mounted a series of this form of implement, from many different places, showing how the type form holds good. (*See* figs. 9, 10, Plate XII.)

The other type consists of a flattish flake with keen edges, one of which, by a peculiar manipulation, has a very sharp cutting angle left projecting to act like a phlem in cutting. I have seen several specimens of it in different hard materials, and regard it as intentional fashioning. It is shown in fig. 8, Plate XII.

In fig. 11, Plate XII, there is shown a very good knife of a parallel type, made of a hard jasper which does not occur anywhere near where the implement was found, but has been evidently imported. The type of the weapon is also special.

On the Cape Flats—flat well-finished weapons, with cutting edges, and often pointed at both ends, are sometimes found; their flatness and thinness distinguished them from those grouped under the head of lances, although many of that form no doubt served for cutting purpose as well as for lance-heads. Several of the specimens give the idea of having been intended for hafts.

[1] This is noticeably the case with a flake of very hard black siliceous material in the British Museum, which was sent from Cape Flats by Dr. Dale. It is broken across, and has its edges much jagged by use.

No. 5. *Chisels, Gouges, &c.*

From the Overberg Districts I have had specimens of carefully worked implements with rounded noses and of long form, such as represent very good working instruments in stone for gouging or scooping. They are the only examples I have seen, but they are not rare, as I am informed by Mrs. Barber, to whom I am indebted for these. (Fig. 10, Plate XI.)

I have not seen any trace of similar implements from any other locality.[1]

Picks.

I have already, in dealing with the question of the perforated war club stones, mentioned the implements used for fashioning and drilling the holes. I have on the table several specimens of the picks and rimers. I have only seen them from the Cape, Berg and Overberg Districts. One of the picks especially is very carefully worked to a triangular pointed form, the best adapted for the purpose for which they were intended. (Fig. 9, Plate XI.)

Rimers,

For smoothing the perforations and making them round, are equally abundant in the Cape and Berg Districts, but generally broken at the points. The arrises of the pointed end also are smoothed down by the operation of perforating.

I have no doubt that as the picks occur in the Overberg Districts, the rimers may also be there found, but as they are liable to be overlooked, I am not surprised to have seen none from there. (Fig. 8, Plate XI.)

No. 6. *Wedges.*

Wedges for splitting bone or hard wood, perhaps even stone, are not uncommon. I have specimens in chalcedony, quartzite and aphanite. I have seen them from the Cape, Overberg and Coast Districts; they are fashioned with a broad keen edge, and would answer the purpose of splitting bones for making arrow-shafts or points, and for many other purposes.

The specimen from Overberg presents the worked characters by chipping, which the gouge, &c., from there has shown. Those

[1] In the British Museum is a much corroded specimen, very symmetrical, triangular, and thin. I believe this to have been a worked instrument intended for hafting at its pointed end, and to be used at its flat end as a scraper or chisel.

The evidences of its having been fashioned are obliterated by corrosion.

It was found in the Cape Flats deposits by Dr. Dale.

from the Coast are not chipped secondarily, and are of a less finished period, although associated, in the case of the chalcedony specimen, with chipped arrow-heads. (*See* figs. 11, 12, Plate XIII.)

No. 7. *Moulders.*

As I find evidences of the use of pottery of a fairly ornamental and finished type, I was prepared to notice an instrument which might have been used in fashioning and working the clay—I think those marked under this head are probably what have been used for that purpose. They are akin to one type of scraper, and yet are utterly distinct. I have found them only on the coast, and it is noticeably there that the strongest remains of pottery occur.

In looking at the pottery in the British Museum from the Cape and Fort Beaufort, it struck me that the long robust pointed arrow-head flakes (fig. 7, Plate XII) may also have been used to make the holes in the bosses of the pots by which the end for suspension of them was attached.

No. 8. *Piercers, Awls, &c.*

These are not abundant. Some peculiar pointed quartz specimens from diluvial deposits, and chalcedony flakes from blown sand are all I have seen from Natal. In the Overberg Districts, chalcedony splinters are even now used to bore ostrich-shell chips for stringing and making into necklaces. Such splinters have been found at a considerable depth in the Kimberley Diamond Mine.

Sir J. Hooker has chalcedony awls and piercers of quartz from the Basutuland cave-shelters and river-beds.

Mr. Sanderson of Natal has a piece of a shank-bone of some animal, which seems to have been fashioned to an awl-shape, similar to the cave implements in bone of Europe. It is so much corroded with iron from the matrix in which it was found (iron-shot bed), that its artificial origin is open to a doubt.[1]

No. 9. *Pottery.*

I have grouped here two series of pottery specimens. (*See* No. I, figs. 9, 10, 11, 12, Plate XIV. No. II, figs. 1–8, Plate XIV.)

[1] With reference to implements of all sorts for piercing or drilling holes in wood, bone, skin, &c., it is to be remarked that nature supplies most liberally thorny plants, with strong spines adapted to piercing skins, which would obviate the necessity to fabricate needles. Moreover should the indigines have resorted to the use of bone-splinters, as seems probable, they also would leave small trace on account of the powerful decomposing action of the climate, when they happened to be left to its influences.

The first is from the Cape and Berg Districts, and approximates to the forms of Bushman and Hottentot pottery. Drawings of two such pots are appended, full size, for comparison. The texture and baking of the clay of which they are composed are very inferior to that found in Natal, as comparison with the adjacent series will show,

The clay used in the pottery from the Cape Flats is very badly mixed and burnt, and contains a great many coarse granitic sand grains—which I do not think were introduced purposely, as was suggested at a former meeting of this Society.

Pottery shards are commonly found all over the Cape Flats, and offer no great divergence from the ordinary types at present in use among the Hottentots and Korannas.[1]

The other series, from Natal and the coast, presents a large diversity of ornament; and so far as one can judge, of types of shape and size which seem to assimilate with those from West Central Africa.

The Kaffirs at present living in Natal make little pottery, and that only of the coarsest description, quite devoid of the ornamentation which seems to have been essential to that made by the earlier inhabitants.

I have not been able to discover enough of any one pot to establish the exact form, or to reconstruct it, but there is noticeable evidence of the good mixing and burning of the materials, and of *ornament;* some of which seems to represent wicker or basket-work, which makes it probable that the use and art of basket-making was known. (*See* figs. 6, 7, Plate XIV.)

Pottery shards in considerable abundance were found in Kimberley Mine, but not having seen them I do not know what inference may be drawn from them.

I am informed also, that among the Basutus, pottery of the Natal type and ornamentation occurs; but I have never seen any specimen proving this.

[1] There are in the British Museum remnants of three or four pots from Cape Flats and Fort Beaufort, of identical type and manufacture. They show very clearly the method by which the pots were suspended for transport. Two bosses are worked into the thickness of the pot at opposite sides of the greatest diameter, and these bosses are perforated tangentially to the diameter of the pot, through their thickness by a long hole which is effected by the meeting of two perforations at a great angle. Through this long tube in the boss on each side the cords or thongs of twisted grass or plaited hide were passed, and suspended the pot freely and conveniently. Ordinarily these holes were horizontal, but I have seen a specimen in which they were vertical, and the cord no doubt passed under the bottom of the pot.

No. 10. *Boiling Stones.*

At the caves near Cape Point, with molluscan shells and a few flakes and bones of game, were found round sea-worn pebbles, which bore evidences of having been subject to the action of fire; besides their use for crushing the mollusc shells and the bones, they possibly served the further purpose of cooking-stones.

At the Avoca Drift, Victoria Country, Natal, associated with arrow-flakes, pottery shards, human bones, &c., were many stones which had evidently been calcined by the action of fire, some having been split by sudden cooling. Particles of slag, such as might be caused by hot fire on sand, with wood ashes, were also found.

These are the only instances which I can distinctly speak to; but without doubt, further examination will increase the number.

No. 11. *Cores.*

These are fairly abundant, and I have seen a large series, but those cores from which some of the larger flakes have been struck are rare, while those of the smaller arrows and scrapers are very numerous. At Overberg, on the Upper Veldt, where the worked scrapers abound, so also do these cores; they are so symmetrically fashioned to a conical shape, by the character of the blows struck in making the scrapers, that Mrs. Barber suggests the possibility of the cores thus obtained having served the secondary purpose of teeth for war-clubs. (Fig. 5, Plate X.)

The Dor tribes and others of Central Africa use clubs of wood with pointed teeth, and it seems probable that a similar weapon, with teeth attached by hide, was known in this region.

From Natal and the Cape, I have also specimens of cores, but the dressing is more like that of European flint cores, and does not tend to form a conical end. Specimens are here shown. In many spots of earlier deposits, where the implements are numerous, I found no pronounced cores.

No. 12. *Human Remains.*

My catalogue of relics would not be complete without mention of the human bones which I found at the Avoca Beds, Natal.

A few teeth and the bones of one leg were associated with pottery and polished weapons, arrow-heads and other chipped implements.

These fragments are here exhibited;—as also portion of a skull from Bushmen's Caves in Basutuland, shown by Sir J. Hooker; the age is very doubtful.

In the British Museum, presented by Captain Thorburn, from Fort Beaufort, are several pieces of bone, which have been polished by sand drift. They were found with pottery and flakes, on sand hills; there are also two pieces of the walls of a skull, an ankle-bone, a broken piece of a tibia, which appears to have been burnt, and a further piece of bone which however I do not think is human.

The Bushmen drawings, copies of many of which have been collected, and are I believe to be published in connection with the Cape Town Library, have been often mentioned by travellers as occurring on the faces of Rock Shelters; the mullers for preparing the pigments, with the little flat slabs on which they were mixed, I have referred to as not uncommon in the Berg lands of South Africa.

That these drawings were the productions of an aboriginal race, more or less suppressed, seems probable; a race *typical* of a portion of the neolithic period which extends to the present day, and is represented by the Bushmen and Koranas.

II. DISTRIBUTION OF IMPLEMENTS IN DISTRICTS AND AT LOCALITIES.

The accompanying Tables, I of Distribution of Implements and Weapons, and II, of the Occurrence of the various Implements at the different localities, are compiled according to my own personal information; they indicate only approximately the localities and the articles found at them in South Africa.

III. CHARACTER OF DEPOSITS IN WHICH IMPLEMENTS OCCUR.

I now turn to the positions and deposits in which implements of any sort have been found in South Africa; they are as follows:—

1st. Caves.
2nd. Kitchen and shell-mounds.
3rd. Alluvial strata, *a.* Æolian or blown sand; *b.* Humus or surface soil.
4th. Diluvial strata. Marls, gravels, &c.

1. CAVES.

Although caves, or shelters produced by the unequal weathering of stratified rocks, have been known as Bushman's caves for many years, and although the rude drawings on the walls of





these caves have attracted interest, still the indications of their habitation as evidenced by floor deposits and refuse heaps, which undoubtedly must be abundant, have not yet received attention, nor am I aware of any record of investigation of such caves but those near Cape Point, which yielded very insignificant results, and displayed few evidences of anthropological value; rough flakes, cooking-stones and shells of edible mollusca being the only discoveries, together with a few bones, I believe undetermined.

In future investigations therefore a very large field remains, in the series of caves or shelters, stretching along the Drakensberg from Cape Point on the south to the north of Natal.

In illustration of the contents of cave shelters, Sir Joseph Hooker has a collection of implements from Basutuland sent to him by Commandant Bowker, who was Governor's Agent there for some years: it comprises remains of chalcedony and agate weapons, of small size, evidently "Bushman arrow-heads." Of these he writes:—"The implements I send you now, consist of spear and arrow-heads, as well as a *modern* Bushman arrow-head to illustrate the difference, and by comparing the small flint chips with the little iron point, the change from the one to the other will illustrate itself as well or better than I could describe it. The arrow-heads (figs. 3, 6, Plate XI), I found mostly in the caves or places which had been formerly occupied by the Bushmen, and I noticed that the farther these places were from the rivers containing fish, the smaller the points and the better adapted to the slaughter of game of a different sort; while those close to the banks of the Caledon River and other tributaries of the Orange River, which flow out of the Drakensberg, are replete with the larger ones; some of these you will find are made with considerable skill and care, but in not one instance have I met with one which has been sharpened by friction or grinding. With reference to the depth at which they occur below the surface, I may say that it is hard to give an opinion with confidence, but everything I have found in South Africa is on or near the surface." Ex. lit. part S. J. D. H. 28, 7, 70. *J.H.B.*

These evidently are the products of the Troglodytes, of a Bushman Race—and no doubt extend back to a considerable period. Besides the chalcedony and agate arrow-heads are one or two aphanite flaked arrow-heads and a tongue-shaped scraper (fig. 8, Plate XIII), with edge chipping of the Nieu Veldt and Diamond Fields types.

The forms found in these caves are not of a type showing a development equal to that at Cape Flats, but rather of an intermediate character such as now occurs alluvially on the higher lands beyond the "Berg."

2. Kitchen and Shell Mounds.

As might be expected near a coast which is prolific in edible mollusca—from Cape Agulhas as far north as Natal, a distance of 1,100 miles,—there occur, occasionally, refuse heaps of molluscan shells. The age of these is ill-defined; many no doubt are accumulating at the present moment, as in Natal, where the natives dwelling a little inland make periodical visits to the coast at the spring and neap tides, to collect shell-fish; camping on the same spot regularly, where the shells gradually form heaps, of more or less magnitude, which becoming covered with drift-sand, lie buried until exposed by severe weather.

I have never examined any of these heaps, but feel confident that to do so carefully, in the case of one which should show the greatest sign of age, would amply repay the trouble expended.

Heaps or middens occur near Simon's Town, where they have been utilized by being burnt for lime by the Boers; and near Cape Point associated with cave shelters; a visit to which was described in the Cape Monthly Magazine for 1878.

I have heard of them also at Soldanha Bay on the West Coast, and near Cape Agulhas to the south. Commandant Bowker has told me of them on the shores in Albany in the Transkei.[1]

I am aware of two spots in Natal where they are partially exposed in the drift-sand.

The contents of the heaps at Simon's Town are noticeably made up of *Haliotis* shells (the Klipkôs of the Dutch) and mussels.

At Cape Point the same occurs.

In Albany Dr. Atherstone's remarks do not say what sort of shells were found in the mounds, but speak of part of a female skeleton, having occurred.

I am not aware of any other spot where human bones have been found associated.

In Natal the small rock oyster and mussels are abundant.

I may mention that near the Simon's Town heaps, the country side is very prolific in the perforated stones before spoken of as war-clubs, and I suspect them to be coeval.

It is interesting to study this mollusc-eating race, probably also fish-catching, and its extent southward. In Natal, where almost within our own times the natives have been exterminated by an influx of continental non-mollusc-eating warriors

[1] The contents of a shell mound examined in Albany by Dr. Atherstone and Mr. Bowker have been described.

from the north, only a very few of the people, evidently the remnants of the original and conquered race, continue to eat shell-fish. The Kaffir proper or Zulu does not touch them. The chief home of these tribes in Natal lies about the Umzinto and Umzimkulu rivers to the south, the natives of which districts pay periodical visits to the beach, not only to gather the bright-coloured *Natica* shells, which *all* Kaffirs do, for ornament, but also for the purpose of collecting mollusca for food. In the bush or wooded part of the Natal coast region there used to be many kraals hidden away, the inhabitants of which lived partly on fish, and were the undoubted refugees of the earlier tribes here located. They are now very nearly gone, having been driven out from their sheltering woods by the colonists, who have turned their homes into sugar and coffee plantations. About fifteen miles inland, in bushland, I have found shells of mussels scattered thickly over the surface, and with them two or three worked flint chips; these were no doubt quite recent remains of this coast tribe.

Without theorising in any way about the fact, I may note that the only localized occurrence of war-clubs in Natal is on the coast.

3. Alluvial.

(*a*.) *Æolian.*

(*a*.) *Æolian.* In any country where a sandy soil, only slightly protected by herbage, exists, or a stretch of sea-shore exposed at the dry season of each year to continuous and violent winds prevalent from one particular quarter, sand dunes or hills are formed. These travel more or less surely, till stopped by herbage, on which the sand gradually accumulates into ridges, to such height as to form barriers, in many cases, between the ocean waves and the low-lying swampy districts which have been gradually taken from their domain by the same causes. This phenomenon is specially noticeable along the east coast of Africa: almost a continuous line of sand hills is seen, capped and kept together by vegetation. Inland also, where from previous causes a sandy soil is found, such as on the Pine Town and other plateaux of Natal, the sand is drifted into ridges, and on excavation is found to be many feet in depth, before reaching the underlying bed of marly clay. Seawards in Natal, on the lee of the higher ridges of hills, accumulations of 8 or 10 feet of pure sand occur, in spots sheltered from the north-east and east winds, where the desiccated particles of sand have deposited themselves.

In these deposits, well instanced by that shown in the railway cutting, leeward of the Red Hill, Natal,—there seems to be a stratified action; I counted in this excavation as many as 52 layers of blown sand lying quite horizontally, about 8 inches in distance apart one from the other. These all abutted on the hill-side abruptly against the red earth forming the hill, and the red earth, as seen in section, has been evidently excavated to a very perpendicular face, probably by water, at a time when this spot, though now 400 feet above the sea-level, seems to have been the head of an estuarine lake.

Between these layers of sand, pipes and casts of sandy concretions occur, apparently of reeds and roots, but devoid of carbonaceous matter. I can only explain this parallel stratification of sand as indicating the dry weather periods of drifting sand each year, and their deposit on the edge of a lake which was gradually rising at the rate of eight inches per year (?).

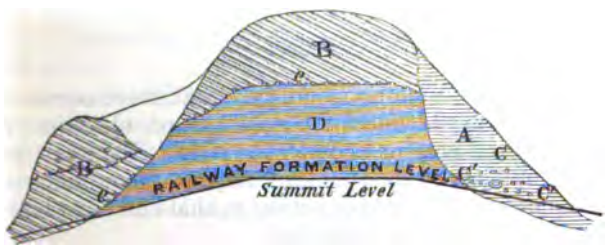
In this sandy deposit, which I have specially described as illustrative of a class, I found weapons of the most neolithic character in Natal, and noticeably the cutting weapon already described as a "quoit." (Fig. 3, Plate VIII.)

They occurred about 8 feet below the surface of the hill-side, but the number of horizontal layers which covered them was 42 to the summit of the hill, and by these layers, not by depth from surface, the age of the deposit must be reckoned, together with the further geological evidences given; unless it be assumed that the implements referred to, chiefly the cutting quoit, had been buried. I do not think this is the case with the worked flints or the rosette found there, but rather that the whole series betokens a spot near a camp; as four or five layers immediately below the height at which the worked weapons occurred, yielded flakes, chips, &c., of chalcedony and milky quartz over a considerable area; as also a polishing stone; and these appear to be all coeval with the "quoit." In the horizontal layers above this find, no trace of chips in flint continues, as though occupation of that locality had ceased about the time the quoit was deposited.

As many points of great interest are demonstrated by this special locality, I give here a section explanatory of it. The contour line of the hill which marks the summit watershed between two valleys falling towards the sea is at a height of 400 feet above the sea-level. The red earth is shown at B, and the excavation referred to, where the drift sand has accumulated, is shown at A, and is seen abruptly excavated, as a cliff or bank of this material when exposed to weather would probably become.

The succeeding layers of sand are marked in lines at C, the

position of the chips and implements at C′C′, and the horizontal layers shown extend to the summit unbroken.



RED HILL RAILWAY CUTTING, VICTORIA COUNTY, NATAL.

A. Natural Excavation. *B*. Red Earth, with Implements. *C*. Drift Sand, deposited in Horizontal Layers. *C′ C′*. Position of Quoit and Quartz, &c., Chips. *D*. Yellow Marl, without Implements. *e e*. Bed of Iron-stone separating *B* and *D*, very feebly indicated in places.

The red earth which occurs at this elevation of from 300 to 400 feet on the Natal coast line here shown at B, is a peculiar formation, and is implement-bearing. It generally rests, somewhat unconformably, on a yellowish marl, similar to that subsequently to be described under the head of diluvial deposits, but which *here* shows no trace of instruments or relics.

At their junction occurs a not very continuous bed of ironstone, *e e*—siliceous and very like the iron band of the Bagshot sands. This ironstone has been worked by natives pre-historically in some few spots, where slag is found. The dense bush in the vicinity, which seems to mark this red earth formation, has afforded the wood requisite for smelting. The underlying yellow marl is shown on the diagram at D, and the interrupted deposit of iron band at *e e*. I shall have occasion to refer again to this diagram, when the red earth as a pre-historic receptacle is under discussion.

D'Urban Flats.

I now pass to the D'Urban Flats. Blown sand is the feature of the whole vicinity of the town of D'Urban, which until quite lately was composed of sandy streets, most horrible to struggle over, and the approach to it even now, from north and south, is a weary toil to man and beast. The subsoil of this sandy waste is a toughish blue clay, and this ever and anon is exposed by the persistency and fury of the north-east winds, and large numbers of quartz and chalcedony chips are seen—never, however, of a very superior type, and always analogous to those from the described drift at the Red Hill. Mr. Sanderson, of D'Urban, has collected in this neighbourhood, and has found,

besides these chips and worked flakes, segments of rings of blue shale, and sharpening stones; similarly as the Red Hill sand yielded the worked stone quoit, &c.

Avoca.

At the "Avoca," Victoria County, Natal, there occurs a sandy reach in the river, "Little Umhlanga," at an elevation of some 20 feet above the present bed of the river. This has yielded a very large number of quartz chips, none of them much worked; and also one of the perforated clubs in shale and the leaf-shaped shale javelin head before described.

Pine Town.

At Pine Town the drift sand is often 6 or 7 feet deep, and where a section is exposed by the railway at Drake's Cutting, it is seen to rest upon a yellow marly deposit; and at the junction of the white sand and marl, there occur, very abundantly, white, yellow and glassy quartz chips, some of which present workmanship in the form of arrow-heads, quite equal to those in the same material found at Cape Town, and associated with more highly finished weapons.

The chipping of fig. 4, Plate XII, in my collection is specially noticeable, as also one of a leaf-form not illustrated. These flakes and worked pieces rarely occur dispersed through the sand itself, but only at the line of separation; and when wind has scoured the Pine Town Flats, and the marl bed is exposed, the chips of quartz are always to be noticed on its surface.

I have seen neither polished stone implements nor chalcedony chips in this deposit. The quartz arrow-heads from here are all mounted for comparison with those found by me on the Cape Flats. It is worth remarking the scour of the sand on the surfaces of the Cape specimens as compared with the surfaces of those from Pine Town, which have evidently not been exposed to such attrition. In other respects they are very similar.

East London.

The next deposit to be mentioned, and one which has yielded very richly, is that at East London. I have not visited this spot myself, but Commandant Bowker has told me concerning it.

On the site of the towns of Cambridge and Panmure, only existing on the maps as yet, large numbers of chips, arrow-

heads, and knife-flakes have occurred. These are all covered by sand hills, and it is only when some exposed section of a road, or the excessive blast of the winds, has laid bare the substratum of clay, that they become visible. In one spot a manufactory was discovered, hammer-stones, cores and flakes, all lying adjacent and undisturbed.

The specimens I have seen from here are all of the very hardest jasperite or chert, but I am not aware whether chalcedony, quartz chips, or polished implements have been found.

Cape Flats.

On the Cape Flats is the last of the deposits of sand containing implements to be described. Until quite recently, geologically, the Table Mountain and small chain to which it belongs, stretching from Cape Town to Cape Point, 30 miles in all, must have been isolated rocks. But the gradual accumulation of detritus from the mountains, the sandy silt from the two sea entrances at each end of the straits, and the action of coralline organisms in forming limestone beds, possibly also aided by subterranean upheaval, have connected the Table Mountain with the mainland.

Across this isthmus, now some 6 or 7 miles in distance, the south-easters blow with terrible fury every summer; and before them, in the time of drought, the sand is driven, in slowly moving dunes, from False Bay, across to Table Bay, gradually dispersing as they reach the latter.

On the Table Bay side, less than a mile from the shore, the highest part of this neck, 40 feet above sea-level, occurs, and here the sandy covering is removed by the winds, leaving bare large patches of a ferruginous concrete of lime, probably the outcome of shell decomposition and red iron ore, whence derived it is difficult to say. On this surface so exposed occur chips, flakes, and weapons in quartzite and quartz, which so far represent the highest types of stone implements yet found in South Africa.

In consequence of the winter accumulation of water here, which flows into Table Bay, great portions of this exposed bed have been dissolved, and the subjacent black sand excavated.

In the winter the hollows thus formed are full of water, and are not very instructive; but in the autumn when the heat and the wind have dried them up, their beds show many stray flakes and stones scattered about; here and there a spot occurs, where by their abundance a continuous pre-historic residence is suggested. There are two such spots which I visited, now probably robbed of their best productions, but still

of immense interest in the large accumulation of chips and flakes present all over the ground. These chips occur *above* the iron conglomerate, and *never below* it, in the black smooth sand, reminding one of manganese sand, but perhaps only stained by the iron infiltration from the superincumbent conglomerate.

Throughout the whole of the Cape Flats, at localities nearer False Bay, I have noticed traces of pottery, and worked chips of quartz and quartzite, but they are not easy to find, as it is only occasionally they are brought to the surface, the sand being thick that covers the clay or iron bed, on which no doubt they rest.

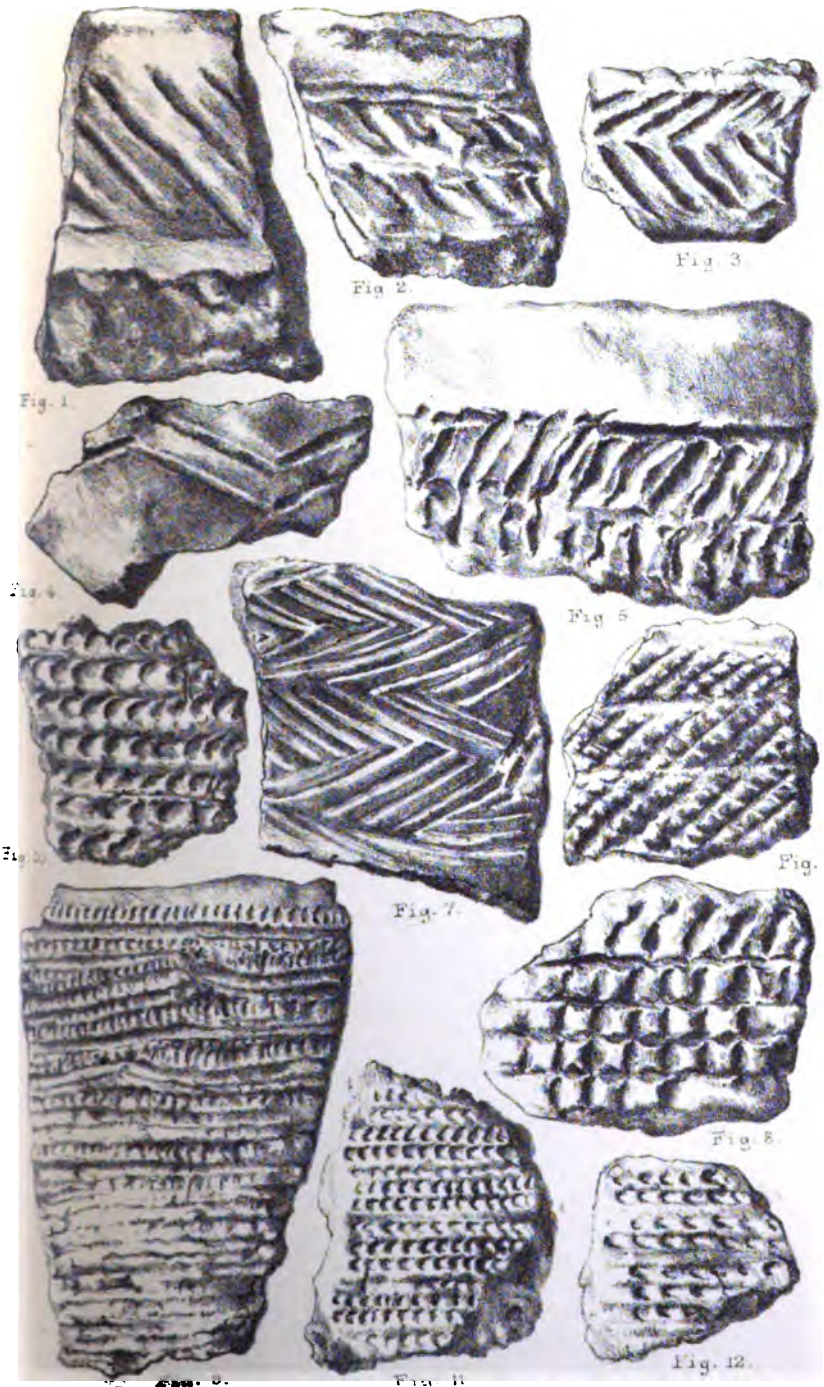
In one spot it was through the agency of the big moles of the Cape that I discovered rather considerable traces on the surface. Their burrows had undermined the sand everywhere, and each burrow appeared to have contributed in its excavation some chip or flake or shard which spoke of prehistoric occupation, and of large accumulations on the clay bed below.

On the sand dunes near "Muysenberg," and in the swamps there, pottery is common, and by its composition of coarse-grained clay and its colour is very distinctive. This character of pottery—specimens of which are shown in figs. 9–12, Plate XIV—prevails on the Cape Flats.

It is noticeable that in all sandy deposits which I have here cited, the locus of the implements is chiefly, and very often entirely, on the clay or iron base which underlies the sand. This, however, does not imply that all the specimens are coeval, but simply proves that the weapons when dropped on the surface, in consequence of their inertia, and the perpetual travelling of the sand particles, gradually by their gravity sink lower and lower till they ultimately rest on the clay base, which is not moved from beneath them as the sand has been, by the wind.

Any one specimen may have arrived there centuries after another to which we find it adjacent, but which had already gone through the same process of letting down, or which may have been cast on to the surface before the sand drift had begun, as is probably the case at *Cambridge*, East London.

These deposits therefore connect us with the present, and to whatever extent they may reach back, their contents are to be received as *neolithic;* no doubt in some cases including a longer period of time than in others.



West Newman & Co. lith.

Pottery, (Types 1 & 2.) S. Africa.

2. Alluvial.

(*b.*) *Humus.*

As a matter of fact, the Æolian drift sand already dealt with is included in this term. But as the operations of nature have been a little different from ordinary subaerial deposits, I have preferred to separate them.

I therefore pass on to *Humus*.

Abundant in large districts of the Free State and Upper Veldts of the Southern Africa table lands, and lying scattered over the surface in some spots in immense quantities, are found cores, arrow-flakes, and scrapers of aphanite (?) How long these flakes may have remained is a question impossible to solve; but the races now living there, Koranna and Hottentot in character, at the present day fabricate similar ones for domestic purposes of the chase or kitchen; and as in the sand drift, so we have a neolithic or "Surface" Age still present, and one which intermingles with the iron of the assegai, of the knife-blade, and with fire-arms.

Many observers have spoken of this univeral use of *stone*, wrought for the purpose on the spot, for scraping and cutting skins, and such like, by the inhabitants of this district, where also the fashioning and piercing of the egg-shell bracelets and necklace is still performed by means of flakes of the chalcedony yielded by the Drakensberg amygdaloids.

The implements scattered freely over the surface are left exposed for centuries, as the herbage is so sparse that it takes a very long time for humus to form, and the heavy rains and hurricane winds conspire to sweep off periodically what little may annually accumulate. The implements themselves, however, oxidise slowly, turning from a shiny black to a rust-red, and by the amount of their oxidisation some inference may be drawn of their relative age one to another, but not of the period of time which has elapsed since they were first thrown aside by the fabricator.

As I have not personally examined this district, I cannot give those scientific details concerning the occurrence of these implements which I am able to do of those in Natal, to which Colony I now return.

Natal—Umzinto.

In the south of Natal is the district of the Umzinto, and the Magistrate's house of that district has been built on a round hill, upraised in the centre of a swampy basin, encircled by higher hills, whose waters are tributary to the Umzinto river. This hill is covered with rich black mould from 1 to 2 feet deep,

and has been a favourite site for Kaffir habitations before the Magistrate built his house there. The black earth has now contributed to a delightful garden, and has moreover yielded to me a very good series of implements in quartz, which I here show in one set. I have not found any reliable trace of any other material used. There were no flint chips, and the pottery was unburnt, coarse, and devoid of ornamentation. The whole region in the vicinity of this district is productive of metamorphic quartz, and quartz crystals from granite; and the accompanying rocks being only sandstone of a soft texture, and a conglomerate mudstone of volcanic origin, it is natural to expect that quartz, here so abundant, should be the material used for stone implements. These are, as in every case where quartz has been worked, exceedingly rough; but show a decided tendency to arrow-head or spear-head forms.

Smerdon's Flat.

On Smerdon's Flat, a district 10 miles north of D'Urban, on the coast, and lying about 200 feet above sea-level, there is an alluvial deposit, which has rendered me many interesting weapons, more especially the celts of the type represented in fig. 2, Plate V.

These celts are all fashioned of chipped indurated shale, and are stained by the iron bed in which they occur, with knives and arrow or lance-heads of basalt, and some few flakes or arrow-heads of white or glassy quartz. The basalt, &c., is very much stained and corroded by the ironstone, and on this account a weapon from that neighbourhood is easily recognisable. This ironstone bed is here from 1 to 3 feet below the surface, and overlies the ordinary contour of the denuded shales, &c., underneath. It is not very thick, and is composed of round and irregular shot-like masses, very similar to marsh iron, which it may probably be.

The deposit of sandy humus which overlies it, yields many weapons of the types above mentioned: they occur interspersed, and not only in the ironstone bed, although that deposit seems to be most prolific of them. I have found no trace of pottery.

There is also a deposit at a higher elevation, 1,800 feet, on Botha's Hill, which has yielded in the humus, chips, &c., and a very much iron-stained bone, in the collection of Mr. Sanderson of D'Urban, which almost suggests by its shape a former use as an awl.

The humus lies immediately on thick ferruginous beds of marsh iron (?), not compacted, and not yielding weapons except at the level of its surface below the humus.

I have not obtained sufficient examples to generalize concerning this bed. Coarse quartz weapons and chips were abundant.

In mentioning this ironstone, or iron deposit, I must call your attention to the fact that I have rarely failed in any portion of South African recent deposits to find a trace of a similar bed, either as black band, iron conglomerate, or marsh iron, each case infallibly representing the lowest point at which I have found any trace of a Stone Age. I do not propose to explain its origin, which no doubt in different localities is various, but I consider it the lowest element of our implement bearing series.

I have not examined any other alluvial formation but those here mentioned as typical.

Diluvial Strata.

Geology of Natal.

Before dealing with the "diluvial" formations, I must give a slight sketch of the geological features of Natal, where alone I have made sufficient investigations of beds of this age, bearing implements, to enable me to generalize thereupon.

Natal (lat. 30° south, long. 30° east) lies to the east, and seawards of the Kathlamba chain of mountains, which is the elevated ridge of the great inland basin of Africa to its east, and consists of lofty trap precipices and outbursts, reaching tions of 11,000 feet above sea-level. The general trend ese mountains is north and south, and at right angles to its tion, are spurs of similar trap outbursts with the valleys of atershed corresponding to the faults produced by these and upheavals. Nearly parallel to the Kathlamba primary touching the sea at Umzimkulu to the south, and running Kranzkop on the Tugela River, in the north of the colony, ds in unbroken line, with signs of greater eruptive power wards, the granite or gneiss axis of upheaval of Natal, is the geological base of the whole colony, and seems to its last era of denudation.

colony to the east, seaward of this axis, is denuded and ted, with high gradients of inclination, and much meta- ic appearance generally. That part to the west until the the Kathlamba is reached, retains its angles of inclination mall, with dislocation at spots, and evidence of river and denudation continuing over a very considerable with the signs of metamorphic action local and slight.

Colony of Natal has been described as falling from the mba Mountains seawards, in steps or terraces, and this

by reference to the accompanying diagram is seen to be the case. From the Kathlamba eastwards, the upper series of steps formed by the strata Nos. 3, 4, 5, terminate abruptly by denudation in bold bluffs about 20 miles west of the central axis of disturbance. These bluffs are well exhibited near Maritzburg and Greytown in the Town Hill and Karloof Spurs.

The terraces formed by Nos. 3, 4, 5, beginning at north-west of the Colony, attain an altitude of 3,300 feet, where No. 5, the coal bearing strata, is well developed at Newcastle and Dundee.

In the Estcourt, Howick, and Karkloof Districts, which attain a little less altitude—about 2,800 to 3,000,—No. 5, is wanting, and No. 4 is very slightly developed, the mass being the whitish friable shale with sandstone intercalated, and with slight coal indications, marked 3, which also appears in an altered condition upon the coast.

The town of Maritzburg is situate on No. 2 bed (exposed by the denudations of 3, 4, 5), at the same level and on a similar geological horizon with the Umvoti Thorns; and at an altitude of about 2,100 feet. This terrace continues eastward till the underlying sandstone is exposed, in abrupt precipices caused by the axial dislocation. This axial disturbance, in which dome-shaped masses of gneiss cover a width of over four miles, forms an irregular and very broken region with an altitude of about 1,600 feet. But the sandstone reappears to its east side, and gives flats or table lands as at Botha's Flat, Inanda, and Noodsberg, reaching 1,800 to 1,900 feet.

In the Inanda region, the patches of sandstone forming this terrace district are very conspicuous in the table tops, with abrupt precipitous sides. A sketch looking north, from the Inchanga granitic centre, is shown, demonstrating the singular appearance of the country of Inanda.

Proceeding seawards—15 miles east of the axis, the Pine Town Flats form a second step at an altitude of 1,100 feet, which seems to have been caused by a dislocation and a subsidence of at least 600 feet. The sandstone sinks out of sight, and the overlying shales are seen, but in smaller beds, and in a more metamorphic condition.

Seawards, the strata fall, by successive dislocations, until a secondary synclinal axis occurs near D'Urban, which is found extending northward through Victoria Country.

This axis, by forming basins, gives rise to the lowest series of terraces or flats, such as Smerdon's and Compensation Flat at an altitude of from 250 to 300 feet. The strata exposed are no longer Nos. 1 and 2, but 3, with sandstone intercalated and with coal indications, very dislocated and metamorphic, and disappearing seawards.

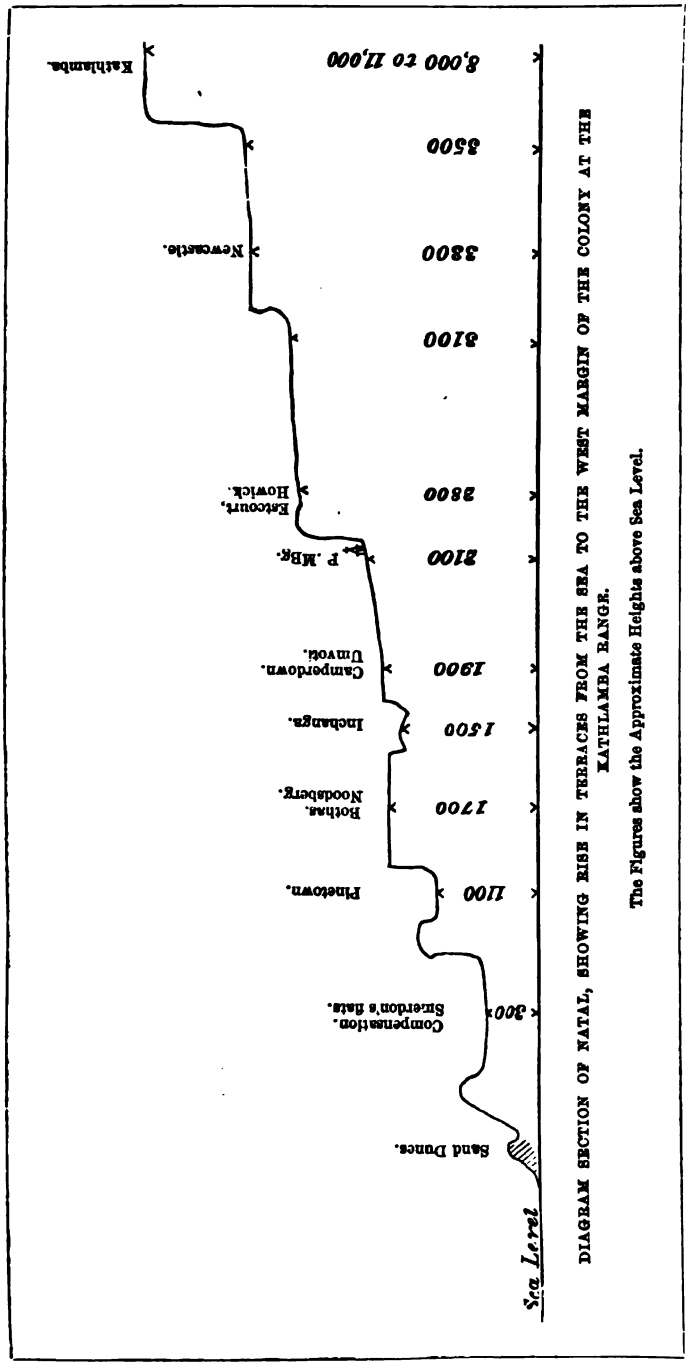
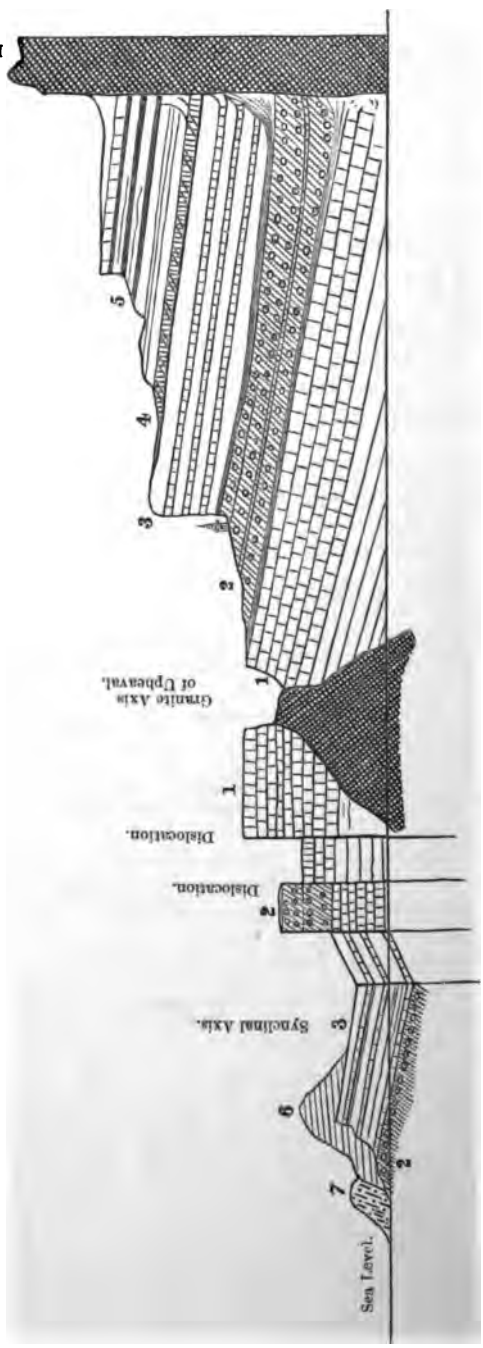


DIAGRAM SECTION OF NATAL, SHOWING RISE IN TERRACES FROM THE SEA TO THE WEST MARGIN OF THE COLONY AT THE KATHLAMBA RANGE.

The Figures show the Approximate Heights above Sea Level.



GEOLOGICAL DIAGRAM SECTION OF THE COLONY OF NATAL, FROM THE COAST, EAST, TO THE KATHLAMBA MOUNTS, WEST.

1. Sandstone. 2. Boulder or Maritzburg Shales. 3. Howick Sandstone and Shales. 4. Dicynodon Beds. 5. Coal. 6. Quaternary. 7. Æolian.

Upon the seaward barriers of these strata is deposited the *red earth*, which is so characteristic of the Natal coast lands, and which is the fosterer of the bushland there.

The general fall of the rivers throughout the Colony is steep, about 40 to 50 feet to the mile, and easterly, at right angles to the axis of disturbance; the watersheds are long, narrow, and precipitous, marking denudation of lateral faults.

The strata above referred to are represented on this diagram. They consist of—

1. Stratified sandstone, with ripple marks, and impressions of reptiles' feet; very nearly level.
2. Fine highly laminated shale, with boulders included, rarely ripple-marked.
3. Highly laminated, whitish friable shale, with sandstone layers intercalated, and more indurated shale, with coal indications. This is represented by similar beds on the coast, but more metamorphic. Seams or pockets of ironstone of low quality, and coal, as at Compensation, of an impure and anthracitic character.
4. Doubtful beds of calcareous sandstone; laminated sandstone, not quite conformable on No. 3, with *Dicynodon* traces (teeth and bones); this series is much more developed southwards in Cape Colony.
5. Unconformable level beds of sandstone and coal, forming the upper series (probably Permian), very unproductive of fossils, and with only *Glossopteris* impressions.

 (There is a cretaceous limestone, which is found to the south of Natal, and is very prolific in shells. This has, however, nothing to do with the present section, nor is it marked on it, but, geologically, it comes in here.)
6. Quaternary red earth deposits cap all the hills of No. 3 strata, which have been uplifted on one edge of the synclinal axis, and are left as the present seaward barrier, from the Illovo River, northward to Zululand.

Sand dunes are not only found on the seashore, but also occur to a lesser extent at Pine Town, on the plateau there, about 1,100 feet above the sea, and at Smerdon's and Compensation Flats about 300 feet above sea-level, as already mentioned.

All these terraces or levels in their quaternary deposits yield stone implements; and in describing them I will deal consecutively with them, from their apparently more recent, to their earlier accumulation, subdividing them into,—

Diluvial Strata.

1. Yellow marly sand or marl.
2. Iron-stone conglomerate.
3. Blue-clay or brick-earth.
4. Chocolate soil or red earth.

No doubt a large proportion of the deposits thus described under the head of diluvial may be looked upon as of the same chronological age as those described as alluvial, and their contents accordingly are very similar. But there are also fluviatile accumulations which are older, and the contents of these display a much rougher material used, with a less power of workmanship.

No. 1. *A Yellow Sandy Marl.*

This is noticed universally as the ordinary fluviatile deposit of Natal, corresponding to our gravel beds in its position relatively to the drainage. The mouths of all the river valleys seawards, the sides of large inland valleys, such as Pine Town, and the gulleys and smaller valleys of the Natal up-country watersheds, all expose this formation. The detritus of which it is composed is fine, and the rolled stones, &c., occurring in it are small. I have found it, *in situ*, at Umzinto Shore 50 miles south of D'Urban; at Umbilo, 10 miles south, and northwards on every river course, and always in it are flakes and chips, generally of a coarse semi-metamorphic sandstone or grit, occasionally of rough quartz, and more rarely of chalcedony, but utterly *unwrought*. This formation on the coast is situated from 25 to 50 feet above the present levels of the rivers near which it occurs, and in one case an apparently similar deposit yielding flakes is found 100 feet above the present bed of the river Umhloti at Verulam.

At Umzinto it is seen 40 feet above sea-level, 100 yards from the shore, lying on sea-worn rocks of the same character as those on which the surf now beats.

In it were associated quartz flakes and dolerite knives, and one scraper which had apparently been subject to the action of fire. Dolerite flakes, &c., are nowhere abundantly represented in this deposit, and when seen evince only first attempts at its employment in place of grit, which it seems to have superseded.

At Avoca, where the deposit appears to be more recent than elsewhere, and contains a larger quantity of sand and *no* rolled stones (passing in fact into an almost pure *sand* deposit), the contents are chiefly of dolerite or trachyte obtained from very adjacent outcrops of these rocks. The specimens are very roughly formed—those exhibited show *how* rude.

Associated with them are a few quartz flakes and grit implements from rolled pebbles in the neighbouring valleys. This locality is very rich in implements and pebbles, mostly broken, and all of the lowest type.

Passing inland from the sea coast up the *Umbilo Valley*, which I choose as an illustration, because sections have been exposed through all its length by the railway works, this deposit is to be seen in the cuttings, especially in the lower part of the valley, and in the side-cuttings made for building banks. The contents are similar to those above mentioned, and everywhere yield *grit* flakes of different characters.

Up-country on the higher table lands of Natal on most of the rivers examined, a trace of these deposits exists in gulleys or broken land, containing weapons of a much more finished type, and made from diorite or from chalcedonic pebbles rather than from *grit*.

The deposit in this up-country district especially is peculiar in the following respects. It generally contains concretionary limestone, often of grotesque and irregular forms, and is always based upon ferruginous concrete which lies upon denuded strata below. The most instructive section of this formation occurs at the junction of the Great and Little Bushman's Rivers, at Estcourt; it is as follows:—

a. Humus, from 1 to 18 *inches* thick.

b. Marly clay; yellowish, from 3 to 5 feet thick. This contains calcareous nodules of concretionary character; fragments of shale, from the adjacent hills which have been denuded, and rolled pebbles of trap; also quartz fragments, but *no* implements.

c. Yellowish clay, largely cemented with iron, and containing rolled pieces of iron concrete, irregular fragments of sandstone rather water-worn, and apparently distributed in layers; chips and flakes, and worked flake-knives and arrow-heads quite clean of fracture, of trap and similar rocks, all presenting materials *not* occurring in the immediate neighbourhood. This yellowish clay is from 5 to 9 feet thick, and rests on stratified shale of the Natal coal-bearing age, more than 12 feet above the river beds.

At other points near Estcourt these strata occur at the height of 100 feet above the river, and at such spots contain more limestone and less ironstone. The worked contents of these beds at this one section are shown, and the series of materials used below it.

Commandant Bowker visited Estcourt, and obtained in a few minutes' search some very good weapons, which he sent to the

Cape Town Museum. They were obtained by him in a spot about a mile from that here mentioned, and apparently exposing a similar section.

No. 2.—*Iron Conglomerate.*

In the open flats, which form the terraced elevations above the sea, inland of Natal, already noticed, a trace of the yellow marl, but of a *whiter* colour, occurs. But the more conspicuous feature of these flats,—as at Little Bushman's River, Rongport, Weenen Thorn Country, Camperdown Flats, and on the coast, at Smerdon's Flat, on the Little Umhlanga watershed,—is the underlying concrete bed of iron-shot, or marsh iron, which I place second on my list of deposits.

This is sometimes from 4 to 5 feet thick, and seldom less than 1 foot. It occurs universally in the upper district, and is quite a marked feature geologically. With rare exceptions it yields well formed weapons in dolerite and quartz. The series of weapons in dolerite, marked Smerdon's Flat, well exemplifies the average yield of these two beds, and specimens of the ferruginous concrete are shown with it. As I before stated, I have never found any worked stone ascribable to man below this iron bed, and I consider it a point of departure for future examination.

No 3.—*Brick Earth, and Blue Clay.*

Brick earth, which occurs at the Great Umhlanga (on the coast), and the blue clay, at the Umsindusi Valley near Pietermaritzburg, succeed the yellow clay, as that in all cases seems to rest upon the conglomerate, whereas these two deposits have only very insuccinct beds of conglomerate *above* them, and are even intermingled with it. I accept them therefore as being synchronous with the conglomerate, but representing its very lowest element.

The brick earth is rather barren of results, and it is only when adjacent to the iron bed, which is sparingly traced in it, that implements occur. Coarse quartz and dolerite are the materials, and they are rarely well formed. I have seen *no grit* specimens.

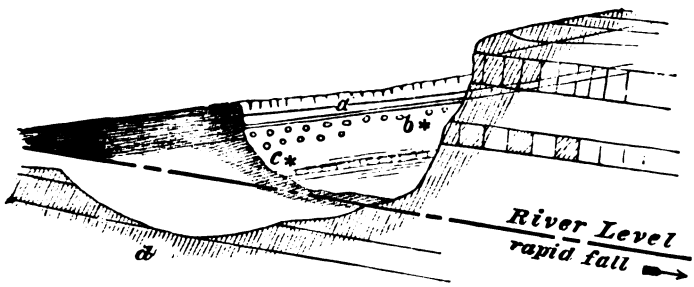
This deposit occurs in the Great Umhlanga Valley, at a point where the watershed has widened out, and the river incline is not so steep as usual. It is from 12 to 18 feet above the present river level, and about 30 feet above the denuded bed of the river, where its bed rock of shale has been reached by boring.

A similar deposit occurs at the Avoca, but I have not obtained any implements from it; it is about 12 feet below the drift sand and marl of which I previously spoke.

Blue clay, with some very intact implements, is found on the Umsimdusi Valley, about 35 to 40 feet above the river, and half-a-mile from its present course. Nearer the river, conglomerate is very abundant, and is quarried for the streets of Maritzburg, but I could only trace a small bed of the conglomerate *above the clay*, which is about 6 feet thick. The implements were all in dolerite.

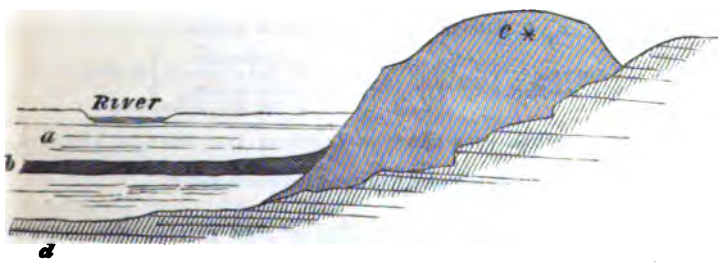
Although the pit was a very small one, I found five or six undoubted flakes, so this would appear to be rich in remains.

Sections illustrative of these deposits are here given:—



SECTION AT ESTCOURT (YELLOW MARL).

a. Humus.
b. Calcareous. } * } Alluvial.
c. Concretionary. }
d. Bed Rocks.

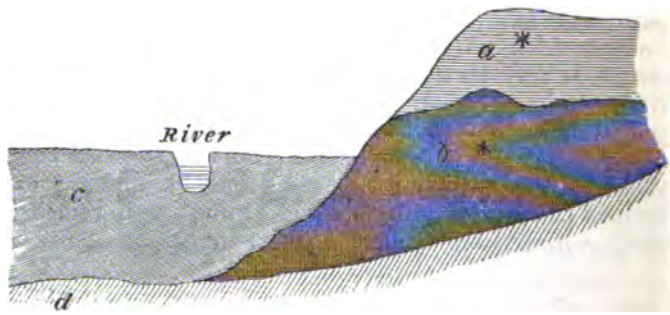


SECTION AT GREAT UMHLANGA (BRICK EARTH).

a. Coarse Sand } Alluvial. *c*. Brick Earth* Diluvial.
b. Hard Clay (blue) } Alluvial. *d*. Bed Rock of Shale.

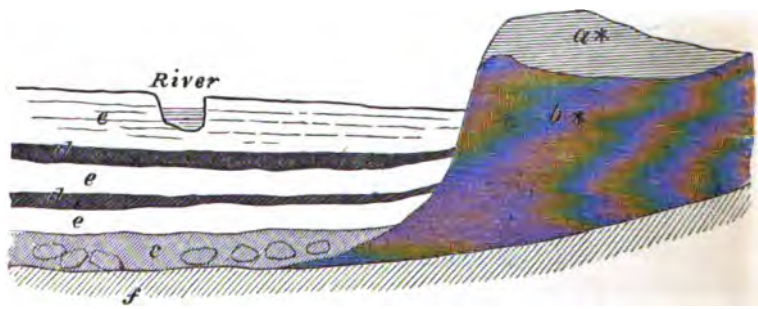
SECTIONS OF RIVER BEDS SHOWING ALLUVIAL AND DILUVIAL DEPOSITS.

The strata marked thus (*) are implement-bearing.



SECTION AT AVOCA (SANDY LOAM).

a. Drift Sand. } *Diluvial.
b. Yellow Marly Sand. }
c. Brick Earth, Alluvial.
d. Bed Rock of Shale.



SECTION AT UMBILO (YELLOW MARL).

a. Drift Sand. } *Diluvial.
b. Yellow Marl. }
c. Boulder Bed. }
d. Blue Clay Beds. } Alluvial.
e. Coarse Sand. }
f. Bed Rock of Sandstone.

SECTIONS OF RIVER BEDS SHOWING ALLUVIAL AND DILUVIAL DEPOSITS.

The strata marked thus (*) are implement-bearing.

No. 4.—Chocolate Soil or Red Earth.

So far the deposits diluvially have all been intimately connected with the present river system, and their formation is a portion of the configuration of to-day. But the beds I now have to deal with, and which yield strong evidence of pre-historic art, are special in character, and of very doubtful origin.

About 1 to 2 miles inland from the shore-line of Natal, generally covered with sandy soil, and clothed with dense bush, the hills at an average height of 350 to 400 feet above the sea-level bear a capping of red earth, bright red, highly aluminous, very well compacted, and utterly devoid of organic remains or

rolled stones. This earth lies upon yellow soft marl semi-stratified, or directly upon gravel boulder beds moderately developed, and wherever I have seen a good section exposed, it yields weapons of a palæolithic type in *grit*, clumsy, ill-fashioned and generally fabricated from the boulders, which invariably are found in the ground at a lower level in the adjacent valleys. I have here a series of these weapons as illustrations.

It is hardly a part of this paper to discuss the geological age of this red earth. It is bedded on the subjacent yellow marl by a line of iron band ore, sometimes thick, sometimes sparse, often represented by a few rolled stones. Above and upon this the implements occur, and here it is again noticeable that *no* implements are found below the iron bed.

I cannot imagine these beds to be of the same date as those of the present river system, but if so they must mark the very commencement of the present configuration of land, and have been mud banks, as their stiff tenacious material evidences, based unconformably on a previous yellow marl, slightly denuded, and with boulders.

Their height above the sea points to the upheaval of the country to the amount of 400 feet at least since the mud-banks were deposited, and the excavation of the red earth and deposits of blown sand as shown in the Red Hill section already referred to, indicate a slight oscillation of the land when raised.

The presence of this stiff red earth, and of terraces or beaches of water-worn and transported boulders at an immediately lower elevation, as also the utter absence of any shells or evidences of life in any of the deposits I have named, suggest a glacial period as the commencement of pre-historic life in this district, but a glacial period which has only been very mild in action, and which has been productive of only such phenomena as lake ice may have produced.

Whatever the origin of this deposit, in it so far have I found the earliest evidences of man, and consequently until further investigations have proved me in error, I consider the red earth to be the oldest deposit in which, from an anthropological view, we are interested. I am sorry that the geology of Natal has had so little study, as its configuration is of great interest, but the incessant presence of trap dykes at all intervals of time, and the consequent interruption and obliteration of strata, together with the almost utter absence, so far, of any organic remains, renders the solution of its history a work of great difficulty; until this has been done the true value of the deposits above mentioned will not be perceived.

I exhibit a Map of Natal, with the foregoing strata which have yielded specimens on examination marked on it.

Diamond Fields.—Kimberley Crater.

One spot which has yielded specimens of exceptional interest from every point of view, is that mine of wealth, the crater at Kimberley.

I was assured by Mrs. Barber, so well known for her philosophical interest and researches in South Africa, that flint weapons, pieces of ostrich egg-shells and chips of chalcedonic flint, such as occur abundantly in many spots in the extensive upland plateau, had been found at great depth in the matrix in which diamonds occur, and mixed with the diamonds. This points to the existence of a mud crater probably of quaternary age, in the slowly upheaving mass of which implements and other *débris*, including shards of pottery, got thrown or drifted, and as the mud, still viscous, slowly circulated in the torpid crater these relics were carried down.

The lowest level at which I have heard of shards, &c., was 72 feet below the surface. Mrs. Barber mentioned 40 feet, and I can rely upon her statement. It is not a part of my paper to discuss the age and origin of these mines, but the presence of these relics must always be of great significance to the geologist, as helping him to read aright the indications he has to decipher.

East Coast.

Colonel Bowker, during a trip up the east coast, in which he landed at Mozambique, Lorenço Marques, and Inhambane, found traces of stone implements at each spot, but he saw none at Zanzibar, where he stayed some days.

The implements mentioned in "Trans. International Congress of Pre-historic Archæology," as dug up by Mr. Bowker on the Fish River, at a depth of 18 feet, and others found by Mr. Dunn of Cape Town in excavating for coal at the Stormberg, at a depth of 12 to 15 feet, were probably palæoliths: in both cases they were only flakes.

I may call your attention to the deposits in which implements are said to have occurred.

West Bank, Kahoon River B. Kaffraria, 1½ miles from sea	.. On red soil base.
Cape Henderson near Kei River	.. Surface of red soil.
Klip River, Spruit (Albert) ..	.. „ „
Queen's Town, Dordrecht ..	.. „ „
East London	Gravel under 4 ft. clay.
Panmure..	.. „ 2 „

In all these instances the deposit seems to agree with the description and position of my ferruginous concrete.

The two latter places are probably different sections of the same deposit, thicker near the sea than inland at Panmure.

Zululand.

Colonel Bowker, who went with the Queen's Cross Expedition to the site of the Prince Imperial's death, records the occurrence of pre-historic implements "in the dongas and hollows near Rorke's Drift and Isandhlwana," also in the donga on the Ityotyosi River, heads of west Umvolosi:—

"Some were dug out in excavating the foundation for the Queen's Cross, and in cutting the drains, whilst that through the lime and *ironstone*[1] deposits, jutting out at the sides of the donga, brought to light the place where the implements occurred in greatest quantities.

"Judging from the ordinary wearing away of the surface soil, I considered that in undisturbed localities 'the specimen drift' would average about 6 feet from the surface of the ground.

"The implements differ but little from those I have found in Cape, Griqualand West, Free State, &c. *No polished* ones were found, all of the ordinary type, and some 'carefully chipped' from 'agate, spar, sandstone, and fossil wood.' The usual core and flakes struck off, together with old pointless weapons, were met with in greater numbers than the perfect weapons, which vary in size from maximum of ten pounds weight to only a few grains."—("Natal Witness," April 17, 1880.)

No. 4.—CHARACTER OF MATERIALS USED FOR FABRICATION OF IMPLEMENTS.

As is seen in tracing out the history of man's prehistoric development, in all parts of the world, the first attempts to shape a flake were made by him on the most easily fractured rocks; and Natal has developed very distinctly traces of the progress of "Art" in fabricating stone implements. We find in the earliest deposits that *quartzose boulders* have been employed, many of them of a comparatively friable material; from these, rough but at the same time tangible, forms were adopted; with these also occur broken pieces of shalestone, but in consequence of the tenderness of the stone originally, and the absence of a distinct conchoidal fracture, I have not accepted them as evidences of man's art, although very probably such was the case.

The quartzose rock became apparently more *selected* for its

[1] This deposit seems to coincide with that described at Estcourt, and to be typical of the upper steps of the Colony.

hardness, and smaller implements with keener edges grew out of the first rough attempts.

In the river gravels of a little more recent period, as well as quartzose implements, we find rough fragments of quartz, quite unshaped, splinters of greenstone and trachytic rock, chalcedony flakes unfashioned, and harder varieties of the quartzose sandstone. These all present fairly keen edges, and the *bulb of percussion* becomes evident as a mark of intentional fracture.

The river clays yield a very similar series to the above.

The concrete and yellow marl however mark a new era, in which the very hardest varieties of the chalcedony, jasper, &c., have been broken and even roughly trimmed.

The trachytic and cherty flakes appear to have been often brought some distance, and the fabricators have not depended entirely upon the use of the stones, &c., which their own neighbourhood supplied.

The general form of the weapons is improved, and the *shaping* of arrow-heads, &c., to a well balanced flake arrived at.

Immediately on this, and almost intermingled with it, occur chert and flinty arrow-heads of good form and workmanship, *fashioned* by back snapping at the edges; *perforated stones* of indurated shale are coincident.

Finally the perfected implement of chert is found at the Cape with *surface* trimming; *quartz* flakes of all ages are abundant, but the material, of whichever variety, seems to have presented difficulties never overcome by the fabricators.

The Cape materials seem to be confined to varieties of a cherty stone of recent date, not unlike hornstone in appearance, siliceous schist, and quartz. I saw no chalcedonic rocks.

In the *Eastern Provinces*, quartz, chert, trachyte, and metamorphic rocks are used.

The *berglands of the Stormberg, &c.*—Chert, jasperite, dolerite, quartz, and siliceous sandstones, and indurated shales.

Basutuland.—Agate, jasper and chert, with trachytic eruptive rocks, and a little quartz.

Overberg.—Chert, chalcedony, and very hard trachytic rocks, clay slate indurated.

Natal.—Chert, jasper, chalcedony, fossil wood (silicified), varieties of quartz, clay slates, trachytic rocks, indurated and metamorphic sandstones, quartzose grit, and indurated shale.

As a rule the implements found in each district have been fashioned out of the minerals of the same district, but there are cases where amethyst, quartz, jasperite, and other selected stones occur, and would point to their introduction from a distance exceeding 100 miles. This is specially noticeable in the case of reddish close-grained chert like jasper found in Natal and at

MAPS ILLUSTRATING RANGE of STONE AGE PERIODS GEOGRAPHICALLY, S. AFRICA.



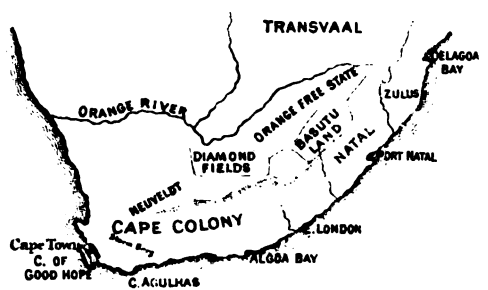
MAP SHOWING "FIRST" or PALÆOLITHIC PERIOD, *marked thus*:



MAP SHEWING 2nd or "EARLY NEOLITHIC" or "SURFACE" *marked thus*:



MAP SHEWING 3rd & 4th or LATE NEOLITHIC PERIOD. 3rd *marked* 4th *d°*



MAP SHOWING 5th INCRAFT of "NEOLITHIC" from Without, *marked*

East London, and having apparently been brought from the foot of the Kathlamba, over 150 miles from either spot where it has been noticed in implements.

Résumé.

I have now dealt with the question of the indications in South Africa of a Stone Age, from the different positions I laid down at the beginning of my paper; and it only remains for me to call your attention to the ethnographical facts which seem to be suggested.

I.—The presence of a primeval low stage of existence, corroborating the usual earliest evidences of man upon earth as found in other countries. Its indications are found in the *Quaternary* strata of Natal, and probably on more complete examinations of South Africa will be universally seen in deposits of similar age.

There seems reason to believe that the earliest beds in which anthropological traces occur are "Glacial."

The *materials* used in the earlier strata are grit and sandstone of a metamorphic character, with doubtful examples of indurated shale; these gradually being replaced in the later strata by harder trachyte, metamorphic rocks, and even chalcedony. The *working of the materials is rude*, displaying a very limited power of fashioning either a constant shape or type, striving rather after a keen edge or point as the *summum bonum* to be achieved. Even the stride from the sandstone to the use of trachytic rocks, as a material during this period, marks progress; the more so when the improvement in fashioning, as shown in the smaller and less clumsy forms of implements, made from the harder rocks, is taken into account.

Rough clubs or celts (such as fig. 3, Plate X), of sandstone, with rude and irregular shaped assegai weapons for thrusting or throwing, appear to have been the methods of *offence* at command.

The *bow does not* seem to have been known; scraper and knife flakes of the roughest character answered all purposes of dressing skins for clothing and for severing portions of meat for cooking, if cooking was known.

For sewing skins together, thorns of plants and sinews of animals were ready at hand.

Whether the people of this age were troglodytic, partially or entirely, must be left to future investigators to determine.

Pottery, which seems *doubtfully present*, is unburnt and unornamented.

This represents a palæolithic era in South Africa.

II.—To the preceding, by extra development, or grafted on it by a wave of development from the North, succeeded a period

which is represented by the contents of the *Upland Strata* of Natal and the Eastern Province of the "Old Colony."

This indicates a state in which the use of *the bow was evidently well known*, and the javelin forms of the celts were well developed, and formed by *chipping* of a coarse character.

The coarse and less effective *materials*, sandstone and grit, had been discarded, and the *harder sorts* of quartz, trachyte, metamorphic and chalcedonic rocks were used to provide flakes. These flakes were keen, symmetrically fashioned, and of a general uniformity in shape and character, but *untrimmed*. *Pottery* had become *well-known*, but its ornamentation and good burning had not yet been arrived at.

Most of the alluvial deposits of the Uplands and the Æolian deposits of the coasts yield relics of this period.

III.—Almost allied to the last named, and found insensibly rising from it, especially in the Æolian strata of the *coastlands* of Natal, is a period in which *polished stone*, and *ornamented pottery* (Type 2 *ante*, figs. 1–8, Plate XIV), with wrought weapons in chalcedony of a *trimmed* character, are found associated with rougher implements in silicious and other rocks.

The *trimming is not very finished*, and not equal to that of the *Overberg* lands. The arrow-heads are of a shape which suggests not only knowledge and *use of the bow*, but *of poison*.

War clubs, consisting of perforated stones, well wrought and polished, belong to this age, and form a connecting link between this period, locally developed in Natal, and the next one, No. IV.

IV.—Has a similar aspect to No. III.

The *materials* used are of a highly *siliceous* character, the forms of all the weapons, whether picks, scrapers, or arrow-heads, are usually improved by *chipping* and *trimming* the original flake at *the edges*. The variety of types of form is very much increased, and many uses not before clearly suggested by the weapons themselves are now indicated. The *arrow-head prevails*, and assegai-heads of a light character, adapted for throwing, such as those which the "Pondas," "Gaikas," and "Galekas" of to-day employ, preponderate.

The *small arrow-heads* of chalcedony are very broad and often *minute*, and evidently were adapted to the *use of poison* to supplement their effect.

War clubs are abundant, but *no other form of polished* weapon is found. Mullers and mortars for preparing roots, grain, and paints are seen, and the character of the life led seems to be identical with that now followed by the Korannas and other tribes allied to the Bosjesmen inhabiting those districts, *Overberg*, in which relics of this age abound.

The knowledge of iron among these people being historically

only two centuries old, the other habits, apart from its use, as of pigment-making, arrow-straightening, corn-crushing, skin-dressing, are still in *statu quo, Neolithic.*

The Pottery of this development is *coarse* in shape, design, and manufacture, very *devoid of ornament*, and has been described as my type No. 1 (see *ante*). (*See* figs. 9–12, Plate XIV.)

It is in the smaller development of the art of *pottery*, and use of *polished stone*, and its superior address in the *trimming of stone to a shape for a purpose*, that this *facies* differs from No. III.

It is traceable from the Highlands, *Overberg*, at the Diamond Fields southward till the Cape of Good Hope is reached, through the *Overberg, Berg* and *Cape Districts.* The most typical forms of this period are the scrapers (figs. 3, 4, 5, Plate XIII), from Overberg and the Cape Districts, and the pottery (Plate XIV.)

The *Uplands* and *Coastlands* do not give any evidences of it, and it seems permissible to suppose No. III, in its *Coastland's* development, to be synchronous with this period, *Overberg.*

The Vth and last period only differs from the preceding one, in the *perfection* of the *workmanship* of the implements found in the *Cape* Deposits. It presents the same aspect in pottery and types of weapons. The essentially *local* occurrence of this period only on the Cape Flats, points to a sudden improvement in the knowledge of working in stone, which seems only to be explained by the proposition of an ingraft of a race, which landing at Table or False Bay, there located their personal acquaintance with stone fashioning, acquired among their own people in another clime.

Is it not possible that these may have been of a Malay type, who coming westerly in canoes, driven on to the east coast of Africa by the monsoon, swept southward by the Mozambique Channel current till Cape Agulhas was passed, and having weathered the Cape of Storms, were cast ashore in those bays which have been such well-known refuges to the mariner?

If this is a theory which can be sustained, does the further suggestion of the oblique eyes, yellow skins, and peculiar wool of the Hottentots in any way appear correlative with it?

I append four sketch maps, showing the distribution of the preceding five periods in South Africa from 30° S. lat. southward. (*See* Plate XV.)

In conclusion, I leave my data, apart from any inferences I may have drawn from them, in the hands of your Institute, as the first of many more complete and satisfactory records which I hope will be laid before you upon the unknown and unworked field of pre-historic Anthropology in South Africa.

Thanking you, Mr. President and Gentlemen, for your

attention to what I fear has been an indifferently expressed essay on a very wide subject, I would now ask your inspection of the series of specimens here arranged in illustration, which I have endeavoured to group so that they shall speak for themselves. Nearly all have been found by myself, and in such circumstances as to preclude the idea of their fraudulent or accidental origin.

Description of Plates VIII to XV.

PLATE VIII.

(All figures in this Plate half natural size.)

South African Stone Implements—

Fig. 1. Weapon; War-club, type 2; allied in form to "Kirri" of present day; from Transkei.

Fig. 2. Ornament; Arm-ring; indurated shale; from Camperdown, near Maritzburg.

Fig. 3. Weapon; quoit shaped; in indurated shale; from Red Hill, Victoria County, Natal.

Fig. 4. Large flake; from Estcourt, Natal.

PLATE IX.

Worked Implements of last Period, V, from Cape Flats; in chert—

Fig. 1. Broken Assegai Head, trimmed on both surfaces, flat section. Point broken; Cape.

Figs. 2, 3. Knives or double Assegai heads, trimmed on both faces. Flat section; Cape.

Fig. 4. Point of large Assegai; Cape.

Fig. 5. Probably like No. 2, broken; Cape.

Figs. 6, 7, 8. Arrow heads, trimmed only on one side, the bulb of percussion being visible on the other; Cape.

Fig. 9. Arrow-head, worked on both sides, from Smerdon Flat, Natal.

PLATE X.

(All figures in this Plate half natural size.)

Celts, Javelins and Cores, &c.—

Fig. 1. Well fashioned Javelin in Trachytic rock, type 2; from King William's Town.

Fig. 2. Javelin in Trachytic rock, type 3; from Smerdon's Flat, Natal.

Fig. 3. Celt (Palæolithic) in Quartzose Grit; from Red Earth, Red Hill, Victoria County, Natal.

Fig. 4. Cutting Flake (Palæolithic) in Quartzose Grit; from Red Earth, Red Hill, Victoria County, Natal.
Fig. 5. Javelin (Palæolithic) in Quartzose Grit; from Red Earth, Red Hill, Victoria County, Natal.
Fig. 6. Core in Trachyte; from near Orange River.

PLATE XI.

Arrowheads, Picks, Rimer, and Gouge—

Fig. 1. Arrowhead; chalcedony; from Estcourt, Natal.
Fig. 2. „ „ Red Hill Victoria County, Natal.
Fig. 3. Arrowhead; agate; from Basutuland, Cave Shelter.
Figs. 4, 5, 6. Arrowheads in Jasper and chalcedony; from Orange Free State.
Fig. 7. Arrowhead; Flint; Red Hill, Victoria County, Natal.
Fig. 8. Rimer; Indurated Shale; Stormberg.
Fig. 9. Pick; Trachytic; Free State.
Fig. 10. Gouge; „ „

PLATE XII.

Arrow and Knife Flakes, trimmed—

Fig. 1. Arrowhead; Indurated Shale; Rougpoort, Weenen County, Natal.
Fig. 2. Arrowhead; Chert; Table Mountain, Cape.
Fig. 3. „ Metamorphic Siliceous Stone; near D'Urban, Natal.
Fig. 4. Arrowhead; Quartz (Glassy); Pine Town, Natal.
Fig. 5. „ Chert; Cape Flats (showing preliminary edge chipping).
Fig. 6. Arrowhead; Trachyte; Estcourt, Natal.
Fig. 7. „ Chert, long form for working Pottery; Cape Flats.
Fig. 8. Knife; Quartz; Natal.
Figs. 9, 10. Knife; Trachytic; rock right and left handed cutters; Natal.
Fig. 11. Knife of Jasper; Little Umhlanga, Natal.

PLATE XIII.

Scrapers. Wedges, and Saw—

Figs. 1, 2. Notched Scraper, for trimming and rounding Arrow shafts, &c.; Trachyte; Orange Free State.
Fig. 3. Convex „ „ „
Figs. 4, 8. Tongue shaped „ „ „

Fig. 5. Flat ended Scraper for trimming and rounding Arrow shafts, &c., Trachyte; Orange Free State.
Figs. 6, 7. Concave „ „
Fig. 9. Moulder „ „ for pottery; Natal.
Fig. 10. Saw; Orange River Free State.
Fig. 11. Wedge; „
Fig. 12. „ Chalcedony; Red Hill, Victoria County, Natal.

PLATE XIV.

Pottery of Types 1 and 2—

Type I.

Figs. 1, 2. Red Burned Pottery, showing ornament on Lips of Vases; Natal.
Fig. 3. Ornament, fillet, on neck of Vase; Natal.
Fig. 4. „ „ body of vase; Natal.
Figs. 5, 6, 7. „ „ wickerwork patterns on vase; Natal.
Fig. 8. Ornament, chequer pattern, incised; Natal.

Type II.

Fig. 9. Lip and side of pot; black pottery; Stormberg, showing typical ornamentation.
Figs. 10, 11, 12. Pieces of black pottery; Cape Flats, &c., showing similar ornamentation.

PLATE XV.

Four Sketch Maps illustrating the Geographical Distribution of Objects of the Stone Age in South Africa.

DISCUSSION.

Dr. E. B. TYLOR remarked that the present paper was the first attempt to bring geological considerations into the Stone Age in Africa. A few years since it was not known that there had ever been a Stone Age in the districts surveyed by Mr. Gooch, but now the course of argument was being repeated which had produced such admirable results in European anthropology, that there had been in South Africa not only the neolithic period which indeed lasted into modern times, but also something corresponding in the rudeness of the stone implements and their geological position to indicate an African palæolithic period. Further investigations in the lines so excellently opened by the author of the present paper will be sure to lead to important results.

Professor T. Rupert Jones spoke highly of Mr. Gooch's paper as a comprehensive, systematic, and painstaking monograph on the occurrence, distribution, and progressive use of stone implements in South Africa; and, indeed, as the first attempt to bring this interesting subject into a scientific form. He ventured to doubt the existence of true "flint" in South Africa, though some of the implements were spoken of as consisting of that particular stone. He thought also that the author might consult the papers by Griesbach (on Natal) and by Stow (on the interior) with advantage as to the geological structure beyond his own indications; also he remarked that Stow had already described the glaciation of some parts of the country, thus supporting the author's observations. As a portion only of Mr. Gooch's specimens were on the table, the speaker could not properly judge of what the author regarded as *palæolithic* types; the very few shown might be "palæolithic" for Africa, but appeared to the speaker as analogous to the *Mousterian* types of France and England. Without pretending to criticise so good and extensive a paper, so very briefly read, Professor Jones complimented the author on its production, and congratulated the Institute on its having been brought before the scientific public.

Mr. Worthington G. Smith observed that the quartzite implements and flakes reminded him strongly of similar objects found in Madras by Mr. R. Bruce Foote.

Mr. A. Tylor and Mr. Rudler also joined in the discussion, and the author briefly replied.

ANTHROPOLOGICAL MISCELLANEA.

ADDRESS *to the* DEPARTMENT OF ANTHROPOLOGY *of the* BRITISH ASSOCIATION, *delivered at the* YORK MEETING, *September 1st*, 1881. By Professor W. H. FLOWER, LL.D., F.R.S., Pres. Z.S., V.P. Anthrop. Inst., &c., Chairman of the Department.

IT it impossible for us to commence the work of this section of the Association without having vividly brought to our minds the loss which has befallen us since our last meeting—the loss of one who was our most characteristic representative of the complex science of Anthropology—one who had for many years conducted with extraordinary energy, amidst multifarious other avocations, a series of researches into the history, customs, and physical characters of the early inhabitants of our island, for which he was so especially fitted by his archæological, historical, and literary as well as his anatomical knowledge, and who was also the most popular and brilliant expositor, to assemblies such as meet together on these occasions, of the results of those researches. I need scarcely say that I refer to Professor Rolleston.

Within the last few months the study of our subject in this country has received an impulse from the publication of a book—small in size, it is true, but full of materials for thought and instruction—the "Anthropology" of Mr. E. B. Tylor, the first work published in English with that title, and one very different in its scope and method from the older ethnological treatises.

The immense array of facts brought together in a small compass, the terseness and elegance of the style, the good taste and feeling with which difficult and often burning questions are treated, should give this book a wide circulation among all classes, and thoroughly familiarise both the word and the subject to English readers.

The origin and early history of man's civilisation, his language, his arts of life, his religion, science, and social customs in the primitive conditions of society, are subjects in which, in consequence of their direct continuity with the arts and sciences, religious, political, and social customs among which we all live, by which we are all influenced, and about which we all have opinions, every person of ordinary education can and should take an interest. In fact, really to understand all these problems in the complex

condition in which they are presented to us now, we ought to study them in their more simple forms, and trace them as far as may be to their origins.

But, as the author remarks, this book is only an introduction to anthropology, rather than a summary of all that it teaches; and some, even those that many consider the most important, branches of the subject are but lightly touched upon, or wholly passed over.

In one of the estimates of the character and opinions of the very remarkable man and eminent statesman, whose death the country was mourning last spring, it was stated: "Lord Beaconsfield had a deep-rooted conviction of the vast importance of race, as determining the relative dominance both of societies and of individuals;"[1] and with regard to the question of what he meant by "race," we have a key in the last published work of the same acute observer of mankind: "Language and religion do not make a race—there is only one thing which makes a race, and that is blood."[2] Now "blood" used in this sense is defined as "kindred; relation by natural descent from a common ancestor; consanguinity."[3] The study of the true relationship of the different races of men is then not only interesting from a scientific point of view, but of great importance to statesmanship in such a country as this, embracing subjects representing almost every known modification of the human species whose varied and often conflicting interests have to be regulated and provided for. It is to want of appreciation of its importance that many of the inconsistencies and shortcomings of the government of our dependencies and colonies are due, especially the great inconsistency between a favourite English theory and a too common English practice—the former being that all men are morally and intellectually alike, the latter being that all are equally inferior to himself in all respects: both propositions egregiously fallacious. The study of race is at a low ebb indeed when we hear the same contemptuous epithet of "nigger" applied indiscriminately by the Englishman abroad to the blacks of the West Coast of Africa, the Kaffirs of Natal, the Lascars of Bombay, the Hindoos of Calcutta, the aborigines of Australia, and even the Maoris of New Zealand!

But how is he to know better? Where in this country is any instruction to be had? Where are the books to which he may turn for trustworthy information? The subject, as I have said, is but slightly touched upon in the last published treatise on anthropology in our language. The great work of Pritchard, a compendium of all that was known at the time it was written, is now almost entirely out of date. In not a single university or public institution throughout the three kingdoms is there any kind of systematic teaching, either of physical or of any other branch of anthropology, except so far as comparative philology may be considered as

[1] "Spectator," April 23, 1881.
[2] "Endymion," vol. ii, p. 205.
[3] "Webster's Dictionary."

bearing upon the subject. The one society of which it is the special business to promote the study of these questions, the Anthropological Institute of Great Britain and Ireland, is, I regret to say, far from flourishing. An anthropological museum, in the proper sense of the word, either public or private, does not exist in this country.

What a contrast is this to what we see in almost every other nation in Europe! At Paris there is, first, the Museum d'Histoire Naturelle, where man, as a zoological subject—almost entirely neglected in our British Museum—has a magnificent gallery allotted to him, abounding not only in illustrations of osteology, but also in models, casts, drawings, and anatomical preparations showing various points in his physical or natural history, which is expounded to the public in the free lectures of the venerable Professor Quatrefages and his able coadjutor, Dr. Hamy; there is also the vigorous Society of Anthropology, which is stated in the last annual report to number 720 members, showing an increase of 44 during the year 1880, and which is forming a museum on a most extensive scale; and, finally, the School of Anthropology, founded by the illustrious Broca, whose untimely death last year, instead of paralysing, seems to have stimulated the energies of colleagues and pupils into increased activity. In this school, supported partly by private subscriptions, partly by the public liberality of the Municipality of Paris and of the Department of the Seine, are laboratories in which all the processes of anthropological manipulation are practised by students and taught to travellers. Here all the bodies of persons of outlandish nationalities dying in any of the hospitals of Paris are dissected by competent and zealous observers, who carefully record every peculiarity of structure discovered, and are thus laying the foundation for an exhaustive and trustworthy collection of materials for the comparative anatomy of the races of man. Here, furthermore, are lectureships on all the different branches. Biological and anatomical anthropology, ethnology, prehistoric, linguistic, social, and medical anthropology are all treated of separately by eminent professors who have made these departments their special study. The influence of so much activity is spreading beyond the capital. The foundation of an Anthropological Society at Lyons has been announced within the present year.

In Germany, although there is not at present any institution organized like the school at Paris, the flourishing state of the Berlin Ethnological Society, which also reports a large increase in the number of its members, the various other societies and journals, and the important contributions which are continually being made from the numerous intellectual centres of that land of learning, all attest the interest which the study of man excites there. In Italy, in the Scandinavian kingdoms, in Russia, and even in Spain, there are signs of similar activity. A glance at the recent periodical literature of America, especially the publications of the Smithsonian Institution, will show how strongly the scientific work of that country is setting in the same direction.

It is true that a very great proportion of the energies of the societies, institutions, and individuals who cultivate this vast subject are, in all these lands, as it is, indeed, to so great an extent in our own, devoted to that branch which borders upon the old and favourite studies of archæology and geology. The fascinating power of the pursuit of the earliest traces of man's existence upon the earth, with the possibilities of obtaining some glimpses of his mode of origin, is attested in the devotion seen everywhere in museums, in separate publications, and in journals, to pre-historic anthropology.

But, though the study of man's origin and earliest appearances upon the earth, and that of the structural modifications to which in course of time he has arrived, or the study of races, are intimately related, and will ultimately throw light upon one another, I venture to think that the latter is the more pressing of the two, as it is certainly the more practically important; and hence the necessity for greater attention to physical anthropology. In seeking for a criterion upon which to base our study of races, in looking for essential proofs of consanguinity of descent from common ancestors in different groups of men, I have no hesitation in saying that we must first look to their physical or anatomical characters, next to their moral and intellectual characters—for our purpose more difficult of apprehension and comparison—and, lastly, as affording hints, often valuable in aid of our researches, but rarely to be depended upon, unless corroborated from other sources, to language, religion, and social customs.

The study of the physical or anatomical character of the races of man is unfortunately a subject beset with innumerable difficulties. It can only be approached with full advantage by one already acquainted with the ordinary facts of human anatomy, and with a certain amount of zoological training. The methods used by the zoologist in discriminating species and varieties of animals, and the practice acquired in detecting minute resemblances and differences that an ordinary observer might overlook, are just what are required in the physical anthropologist.

As the great problem which is at the root of all zoology is to discover a natural classification of animals, so the aim of zoological anthropology is to discover a natural classification of man. A natural classification is an expression of our knowledge of real relationship, of consanguinity—of "blood," as the author of "Endymion" expresses it. When we can satisfactorily prove that any two of the known groups of mankind are descended from the same common stock, a point is gained. The more such points we have acquired, the more nearly shall we be able to picture to ourselves, not only the present, but the past distribution of the races of man upon the earth, and the mode and order in which they have been derived from one another.

The difficulties in the way of applying zoological principles to the classification of man are vastly greater than in the case of most animals; the problem being, as we shall see, one of much

greater complexity. When groups of animals become so far differentiated from each other as to represent separate species, they remain isolated; they may break up into further subdivisions —in fact, it is only by further subdivision that new species can be formed; but it is of the very essence of species, as now universally understood by naturalists, that they cannot recombine, and so give rise to new forms. With the varieties of man it is otherwise. They have never so far separated as to answer to the physiological definition of species. All races are fertile one with another, though perhaps in different degrees. Hence new varieties have constantly been formed, not only by the segmentation, as it were, of a portion of one of the old stocks, but also by various combinations of those already established.

Neither of the old conceptions of the history of man, which pervaded the thought, and form the foundation of the works of all ethnological writers up to the last few years, rest on any solid basis, or account for the phenomena of the present condition and distribution of the species.

The one view—that of the monogenist—was that all races, as we see them now, are the descendants of a single pair, who, in a comparatively short period of time spread over the world from one common centre of origin, and became modified by degrees in consequence of changes of climate and other external conditions. The other—that of the polygenist—is that a certain number of varieties or species (no agreement has been arrived at as to the number, which is estimated by different authorities at from three to twenty or more) have been independently created in different parts of the world, and have perpetuated the distinctive characters as well as the geographical position with which they were originally endowed.

The view which appears best to accord with what is now known of the characters and distribution of the races of man, and with the general phenomena of nature, may be described as a modification of the former of these hypotheses.

Without entering into the difficult question of the method of man's first appearance upon the world, we must assume for it a vast antiquity—at all events as measured by any historical standard. Of this there is now ample proof. During the long time he existed in the savage state—a time compared to which the dawn of our historical period was as yesterday—he was influenced by the operation of those natural laws which have produced the variations seen in other regions of organic nature. The first men may very probably have been all alike; but, when spread over the face of the earth, and become subject to all kinds of diverse external conditions —climate, food, competition with members of their own species or with wild animals—racial differences began slowly to be developed through the potency of various kinds of selection acting upon the slight variations which appeared in individuals in obedience to the tendency implanted in all living things.

Geographical position must have been one of the main elements

in determining the formation and the permanence of races. Groups of men isolated from their fellows for long periods, such as those living on small islands, to which their ancestors may have been accidentally drifted, would naturally, in course of time, develop a new type of features, of skull, of complexion or hair. A slight set in one direction, in any of these characters, would constantly tend to intensify itself, and so new races would be formed. In the same way different intellectual or moral qualities would be gradually developed and transmitted in different groups of men. The longer a race thus formed remained isolated, the more strongly impressed and the more permanent would its characteristics become, and less liable to be changed or lost, when the surrounding circumstances were altered, or under a moderate amount of intermixture from other races—the more "true," in fact, would it be. On the other hand, on large continental tracts, where no "mountains interposed make enemies of nations," or other natural barriers form obstacles to free intercourse between tribe and tribe, there would always be a tendency towards uniformity, from the amalgamation of races brought into close relation by war or by commerce. Smaller or feebler races have been destroyed or absorbed by others impelled by superabundant population or other causes to spread beyond their original limits; or sometimes the conquering race has itself disappeared by absorption into the conquered.

Thus, for untold ages, the history of man has presented a shifting kaleidoscopic scene; new races gradually becoming differentiated out of the old elements, and, after dwelling awhile upon the earth, either becoming suddenly annihilated or gradually merged into new combinations; a constant destruction and reconstruction; a constant tendency to separation and differentiation, and a tendency to combine again into a common uniformity—the two tendencies acting against and modifying each other. The history of these processes in former times, except in so far as they may be inferred from the present state of things, is a difficult study, owing to the scarcity of evidence. If we had any approach to a complete palæontological record, the history of man could be reconstructed; but nothing of the kind is forthcoming. Evidences of the anatomical characters of man, as he lived on the earth during the time when the great racial characteristics were being developed, during the long ante-historic period in which the Negro, the Mongolian, and the Caucasian were being gradually fashioned into their respective types, is entirely wanting, or, if any exists, it is at present safely buried in the earth, perhaps to be revealed at some unexpected time, and in some unforeseen manner.

It will be observed, and perhaps observed with perplexity by some, that no definition has as yet been given of the oft-recurring word "race." The sketch just drawn of the past history of man must be sufficient to show that any theory implying that the different individuals composing the human species can be parcelled out into certain definite groups, each with its well-marked and permanent limits separating it from all others, has no scientific

foundation; but that, in reality, these individuals are aggregated into a number of groups of very different value in a zoological sense, with characters more or less strongly marked and permanent, and often passing insensibly into one another. The great groups are split up into minor subdivisions, and filling up the gaps between them all are intermediate or intercalary forms, derived either from the survival of individuals retaining the generalised or ancestral characters of a race from which two branches have separated and taken opposite lines of modification, or from the reunion of members of such branches in recent times. If we could follow those authors who can classify mankind into such divisions as trunks, branches, races, and sub-races, each having its definite and equivalent meaning, our work would appear to be greatly simplified, although perhaps we should not be so near the truth we are seeking. But being not yet in a position to define what amount of modification is necessary to constitute distinction of race, I am compelled to use the word vaguely for any considerable group of men who resemble each other in certain common characters transmitted from generation to generation.

In approaching the question of the classification of the races of man from a physical point of view, we must bestow great care upon the characters upon which we rely in distinguishing one group from another. It is well known in zoology that the modifications of a single organ or system may be of great value, or may be quite useless according as such modifications are correlated with others in different organs or systems, or are mere isolated examples of variation in the economy of the animal without structural changes elsewhere. The older ornithologists associated in one order all the birds with webbed feet, and the order thus constituted, *Natatores* or *Palmipedes*, which received the great sanction of Cuvier, still stands in many zoological compilations. Recent investigations into the anatomy of birds have shown that the species thus associated together show no other sign of natural affinity, and no evidence of being derived from the same stock. In fact, there is tolerably good proof that the webbing of the feet is a merely adaptive character, developed or lost, present or absent, irrespective of other structural modifications. In the same way, when anthropology was less advanced than it is now, it was thought that the distinction between long and short headed, dolichocephalic and brachycephalic people, pointed out by Retzius, indicated a primary division of the human species; but it was afterwards discovered that, although the character was useful otherwise, it was one of only secondary importance, as the long-headed as well as the short-headed group both included races otherwise of the strongest dissimilarity.

In all classifications the point to be first ascertained is the fundamental plan of construction; but in cases where the fundamental plan has undergone but little modification, we are obliged to make use of what appear trivial characters, and compensate for their triviality by their number. The more numerous the combinations of specialised characters, by which any species or race differs from

its congeners, the more confidence we have in their importance. The separation of what is essential from what is incidental or merely superficial in such characters lies at the root of all the problems of this nature that zoologists are called upon to solve; and in proportion as the difficulties involved in this delicate and often perplexing discrimination are successfully met and overcome will the value of the conclusions be increased. These difficulties, so familiar in zoology, are still greater in the case of anthropology. The differences we have to deal with are often very slight; their significance is at present very little understood. We go on expending time and trouble in heaping up elaborate tables of measurements, and minutely recording every point that is capable of description, with little regard to any conclusions that may be drawn from them. It is certainly time now to endeavour, if possible, to discriminate characters which indicate deep-lying affinity from those that are more transient, variable or adaptive, and to adjust, as far as may be, the proper importance to be attached to each.

It is, however, quite to be expected that, in the infancy of all sciences, a vast amount of labour must be expended in learning the methods of investigation. In none has this been more conspicious than in the subject under consideration. Many have come to despair, for instance, of any good, commensurate with the time it occupies, coming of the minute and laborious work involved in craniometry. This is because nearly all our present methods are tentative. We have not yet learnt, or are only beginning to learn, what lines of investigation are profitable and what are barren. The results, even as far as we have gone, are, however, quite sufficient, in my opinion, to justify perseverence. I am, however, not so sure whether it be yet time to answer the demand, so eager and so natural, which is being made in many quarters for the formulation of a definite plan of examination, measurement, and description to which all future investigation should rigidly adhere. All steps to promote agreement upon fundamental points are to be cordially welcomed, and meetings or congresses convened for such a purpose will be of use by giving opportunities for the impartial discussion of the relative value of different methods; but the agreement will finally be brought about by the general adoption of those measurements and methods which experience proves to be the most useful, while others will gradually fall into disuse by a kind of process of natural selection.

The changes and improvements which are being made yearly, almost monthly, in instruments and in methods, show what we should lose if we were to stop at any given period, and decree in solemn conclave that this shall be our final system, this instrument and this method shall be the only one used throughout the world, that no one shall depart from it. We scarcely need to ask how long such an agreement would be binding. The subject is not sufficiently advanced to be reduced to a state of stagnation such as this would bring it to.

To take an example from what is perhaps the most important of

the anatomical characters by which man is distinguished from the lower animals, and the superior from the inferior races of man; the smaller or greater projection forwards of the lower part of the face in relation to the skull proper, or that which contains the brain. From the time when Camper drew his facial angle, to the present day, the readiest and truest method of estimating this projection has occupied the attention of anatomists and anthropologists, and we are still far from any general agreement. Every country, every school, has its own system, so different that comparison with one another is well nigh impossible. This is undoubtedly an evil; but the question is whether we should all agree to adopt one of the confessedly defective systems now in vogue, or whether we should not rather continue to hope for, and endeavour to find, one which may not be subject to the well-known objections urged against all.

We want, especially in this country, more workers, trained and experienced men who will take up the subject seriously, and devote themselves to it continuously. Of such we may say, without offence to those few who have done occasional excellent work in physical anthropology, but whose chief scientific activity lies in other fields, we have not one. In the last number of the French "Revue d'Anthropologie," a reference caught my eye to a craniometrical method in use by the "English school" of anthropologists. It was a reference only to a method which I had ventured to suggest, but which, as far as I know, has not been adopted by any one else. A school is just what we have not, and what we want—a body of men, not only willing to learn, but able to discuss, to criticise, to give their approval to, or reduce to its proper level, the results put forth by our few original investigators and writers. The rapidity with which any one of the most slender pretensions who ventures into the field (I speak from painful experience) is raised to be an oracle among his fellows is one of the most alarming proofs of the present barrenness of the land.

Another most urgent need is the collection and preservation of the evidences of the physical structure of the various modifications of man upon the earth. Especially urgent in this now, as we live in an age in which, in a far greater degree than any previous one, the destruction of races, both by annihilation and absorption, is going on. The world has never witnessed such changes in its ethnology as those now taking place, owing to the rapid extension of maritime discovery and maritime commerce, which is especially affecting the island population among which, more than elsewhere, the solution of the most important anthropological problems may be looked for. If we have at present neither the knowledge nor the leisure to examine and describe, we can at least preserve from destruction the materials for our successors to work upon. Photographs, models, anatomical specimens, skeletons or parts of skeletons, with their histories carefully registered, of any of the so-called aboriginal races, now rapidly undergoing extermination or degeneration, will be hereafter of inestimable value. Drawings,

descriptions, and measurements are also useful, though in a far less degree, as allowance must always be made for imperfections in the methods as well as the capacity of the artist or observer. Such collections must be made upon a far larger scale than has hitherto been attempted, as, owing to the difficulties already pointed out in the classification of man, it is only by large numbers that the errors arising from individual peculiarities or accidental admixture can be obviated, and the prevailing characteristics of a race or group truly ascertained. It is only in an institution commanding the resources of the nation that such a collection can be formed, and it may therefore be confidently hoped that the trustees of the British Museum will appropriate some portion of the magnificent new building, which has been provided for the accommodation of their natural history collections, to this hitherto neglected branch of the subject.

I have mentioned two of the needs of anthropology in this country—more workers and better collections: there is is still a third —that of a society or institution in which anthropologists can meet and discuss their respective views, with a journal in which the results of their investigations can be laid before the public, and a library in which they can find the books and periodicals necessary for their study. All this ought to be provided by the Anthropological Institute of Great Britain and Ireland, which originated in the amalgamation of the old Ethnological and Anthropological Societies. But, as I intimated some time ago, the Institute does not at the present time flourish as it should; its meetings are not so well attended as they might be; the journal is restricted in its powers of illustration and printing by want of funds; the library is quite insufficient for the needs of the student.

This certainly does not arise from any want of good management in the Society itself. Its affairs have been presided over and administered by some of the most eminent and able men the country has produced. Huxley, Lubbock, Busk, Evans, Tylor, and Pitt-Rivers have in succession given their energies to its service, and yet the number of its members is falling away, its usefulness is crippled, and its very existence seems precarious. Some decline to join the Institute, others leave it upon the plea that, being unable from distance or other causes to attend the meetings, they cannot obtain the full return for their subscriptions; others on the ground that the Journal does not contain the exact information which they require.

There surely is to be found a sufficient number of persons who are influenced by different considerations, who feel that anthropological science is worth cultivating, and that those who are laboriously and patiently tracing out the complex problems of man's diversity and man's early history are doing a good work, and ought to be encouraged by having the means afforded them of carrying on their investigations and of placing the results of their researches before the world—who feel, moreover, that there ought to be some central body, representing the subject, which may, on

occasion, influence opinion or speak authoritatively on matters often of great practical importance to the nation.

There must be many in this great and wealthy country who feel that they are helping a good cause in joining such a society, even if they are not individually receiving what they consider a full equivalent for their small subscription—many who feel satisfaction in helping the cause of knowledge, in helping to remove the opprobrium that the British Anthropological Society alone of those of the world is lacking in vitality, and in helping to prevent this country from falling behind all the nations in the cultivation of a science in which for the strongest reasons it might be expected to hold the foremost place. It is a far more grateful task to maintain, extend, and if need be improve, an existing organisation, than to construct a new one. I feel, therefore, no hesitation in urging upon all who take interest in the promotion of the study of Anthropology to rally round the Institute, and to support the endeavours of the present excellent President to increase its usefulness.



FIG. 1.

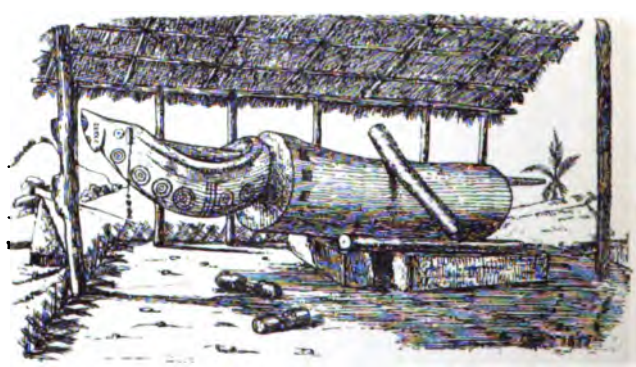


FIG. 2.

NAGA HOUSE AND VILLAGE DRUM.



THE JOURNAL

OF THE

ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

MAY 10TH, 1881.

Major-General A. PITT RIVERS, F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From J. PARK HARRISON, Esq., M.A.—Association Française pour l'avancement des Sciences. Compte rendu de la 8e Session, 1879.

From the LIBRARIAN of the GREY COLLECTION, South African Library, Cape Town.—Blue Book of Native Affairs, Cape of Good Hope, 1881.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, 1880, Heft 6.

From the SPANISH ANTHROPOLOGICAL SOCIETY.—Antropologico, Nos. 3, 4.

From the SOCIETY.—Bulletins de la Société d'Anthropologie de Paris. July–December, 1880.

—— Journal of the Society of Arts, Nos. 1484, 1485.

—— Proceedings of the Royal Geographical Society, May, 1881.

—— Boletim da Sociedade de Geographia de Lisboa, 1880, No. 3.

—— Proceedings of the Royal Society, No. 211.

—— Transactions of the Asiatic Society of Japan, Vol. VIII, part 3.

From the ASSOCIATION.—Proceedings of the Geologists' Association, April, 1881.
From the ACADEMY.—Rozprawy i Sprawozdania z Posiedzen wydzialu Matematyczno-przyrod-niczego Akademii Umiejetnósci, t. 7.
—— Zbiór Wiadomósci do Antropologii Krajowéj widawny staraniem Komisyi Antropologicznéj Akad. Umiej. w Krakowie, tom. 4.
From the EDITOR.—"Nature," Nos. 600, 601.
—— Revue Scientifique, Nos. 18, 19.
—— The Scientific Roll, No. 2.

Mr. HYDE CLARKE exhibited and briefly described a collection of stone and copper implements which had been sent to him by Mr. A. Papadopoulos Keramenes, of Smyrna. The collection consisted of eleven specimens from the district of Iconium (Konieh), ten from Smyrna, eleven from the Troad, and seven from Erythræ—all of stone; with two copper implements from the island of Chios or Scio.

The following paper was then read by the Author:—

NOTES *on the* WILD TRIBES INHABITING THE SO-CALLED NAGA HILLS, *on our* NORTH-EAST FRONTIER OF INDIA. Part II.[1]

By Lieutenant-Colonel R. G. WOODTHORPE, R.E.

[WITH PLATES XVI TO XXII.]

IN my last paper I dealt only with the Angamis, or kilted Nagas, who, as I then stated, are distinguished from all the other Naga tribes by many striking characteristics. We now turn to the second great section of unkilted Nagas, which includes by far the larger portion of the inhabitants of these hills. It is a great pity that political and other considerations prevented any exploration beyond the great chain of the Saramethi Peaks, which would have enabled us to trace the tribes from the Naga Hills into the Burmese territory, and thus have decided which section, kilted or non-kilted, is more nearly allied to the tribes inhabiting the confines of Burmah. As I have before remarked, all the tribes included in the second section, of whom I treat to-night, diverge from each other considerably in many minor details, but the differences merge into each other a good deal, and the tribes all seem to belong to the same race, whereas time, proximity, intercourse, and the same geographical conditions seem alike unable to modify the sharp differences

[1] For Part I of this Paper, *see* p. 56.

which divide the kilted from the non-kilted Nagas, or assimilate them to each other.

The tribes commonly known as Rengmahs, Sehmahs, Lhotas &c., immediately adjoining the Angamis, all present the same type. They are shorter than the Angamis, and of square though fairly powerful build; their eyes are small and oblique, faces flat with high cheek-bones, a dirty sallow complexion, a sullen and often repulsive cast of countenance; all this added to their evident distrust of all strangers (so different from the Angamis), combine to make them a very unprepossessing race, and they are often further disfigured by frightful goitres, from which they suffer greatly. These tribes generally wear their hair either shaved off or cut very short, except for a large basin-shaped patch on the crown, where it is kept about 2 or 3 inches long, and combed down all round. Hair-cutting is done in a very primitive manner, the implement used being a dâo and a small block of wood. This block is pressed down close on the head underneath the hair, which is then chopped off as close as may be, and it is wonderful how close it can be cropped in this way. In some instances which came under our notice a common field hoe was the cutting tool. Their combs are rather neatly made of bamboo.

Notwithstanding all my previous experience of hill-men, I was quite unprepared to find such a total absence of cleanliness among these tribes: as Dr. Brown remarks "their bodies are ingrained with the accumulated smoke, mud, and filth of a lifetime," and, with the exception of the Sehmahs, they are perpetually smoking dirty clay or wooden pipes, made on a similar principle to that of a Lushai woman's pipe, *i.e.*, the bowl is fitted with a small bamboo receptacle beneath for the tobacco juice, which is collected, mixed with a little water, and carried about in a small tube from which sips are occasionally taken.

The Rengmahs are particularly noticeable for the peculiar tail (Plate XIX, fig. 2) which they alone, I believe, of all the tribes wear. It is of wood, about a foot and a half long, curved upwards, broad at the base and tapering to the tip. Rows of white seeds are fastened longitudinally on the tail, and from it hang long tufts of black and scarlet hair. The broad part of the tail is fitted to the small of the back, and is suspended from the shoulders by a broad prettily embroidered belt (white, red, and black); a small cloth tied tightly round the waist further secures the tail. This tail is used in fight to signify defiance; they turn tails towards the enemy, and by hopping rapidly on each leg impart the defiant wag to the tail. "Turning tail" with them means the reverse of what it does with us. This tribe, as also many others, wears, as a waist cloth only, a small flap of cotton

cloth pendant from the waistbelt. Others wear a double flap, the inner end of which is drawn tightly up between the legs and secured at the back to the waistbelt. Some of these flaps are dark blue ornamented with cowries, in stars or stripes, others are white with broad red patches, or white with fine red lines; indeed this small garment varies in size, colour, and ornamentation with almost every village, certainly with every tribe. Some tribes go perfectly naked; one tribe we found close to the Sehmahs, and it is a curious fact that these naked people are not found in a group by themselves, but scattered about among the other tribes; thus we find a village of naked Nagas surrounded by decently clad people, and pass through several villages before coming again upon the naked folk. It is very seldom indeed that any women are seen in a state of complete nudity, and generally they are decently clad, much as the Angami woman already described. Some tribes, as Rengmahs, Lhotas, Hatigorias, &c., supplement their waist cloths by an apron about a foot square, profusely ornamented with cowries; other tribes, those in the hills adjoining the districts of Sibsagor and Jaipur, wear a long bright blue cloth, very much embroidered with red cotton, and decorated with beads, the inevitable cowries, &c. Very few, however, of the non-kilted tribes quite come up to the Angami in general appearance, when fully equipped in his war-paint: no decorations, though frequently more elaborate, seem so clean or handsome.

Among the other tribes the shields are smaller and less decorated than the Angami's, and among the tribes immediately adjoining the Angamis they are made of plaited bamboo, unadorned generally. A curious circumstance came under our notice on one occasion. We had been attacked by night, but had driven off our assailants, and burned their village which was hard by our camp. We remained in that camp for some days, till peace was concluded, but before that occurred we had to repel a second attack, this time by day, and I noticed that most of our assailants had fastened pieces of the stem of the plantain, or banana tree, to the exterior of their shields. A Khasia orderly I had with me explained that this had been done in accordance with an idea prevalent among his own people, and probably among most of the hill tribes ignorant of the exact nature of fire-arms, that a bullet is a piece of fire, whose effect can be counteracted by causing it to pass through a wet substance. Hence these shields of plantain stalks which contain a very large amount of moisture. How fatal this error, several Nagas proved. The spears and dâos among the Rengmahs, Sehmahs, &c., are very similar in appearance and size to those of the Angamis, some slight peculiarity in the shape of the spear

occasionally indicating the tribe using it. We find among these non-kilted tribes very good bows and crossbows of bamboo, carrying long iron-headed arrows, which are seldom poisoned. A Naga once told Lieutenant Holcombe that it was not at all the correct thing to use a poisoned arrow, unless, indeed, it was fired at a woman.

A peculiarity among all these non-kilted tribes, which again distinguishes them from the Angami, is the presence in their villages of a conspicuous building called the Bachelor's House (found also among the Garos). In the larger villages we find two or three of these houses in each village. In these live all the young men of the village, from the age of puberty till such time as they marry and set up a house for themselves. Among the Rengmahs, Lhotas, &c., the bachelor's house is not a very imposing-looking building, being only rather longer than the other houses in the village, all of which are small and poor as compared with those of most other tribes.

A practice common to all, though, as we have seen, not adopted by the Amgami, is that of raising the house above the ground on posts or piles of bamboo (Plate XVIII, fig. 1). The house is divided generally into a front room, the floor of which is the ground itself, and here is the fireplace. Then we come to a room occupying the rest of the house, the floor of which is raised, and beyond the house is a small raised platform, a continuation of the floor, on which many of the household duties are performed, and where vegetables are dried, &c. The walls and floor of the houses are of bamboo matting, with thatched roofs. The crops are generally stored in rows of small raised houses just outside the villages. The hills here present long narrow ridges, along which are built the villages, the ridge itself forming the main street, and all the houses built on either side facing inwards. This plan of letting the front of the house rest on the ground, and running it out to the back on piles, does away with the necessity for levelling sites, and renders the houses more airy, though the smoke and dirt which thickly cover the interior of the houses, walls, and roof alike, render them anything but pleasant habitations to anyone more fastidious than a Naga. The fortifications of the Rengmahs, Lhotas, and Sehmahs are not so elaborate as those of the Angami villages, though they are capable at times of making a very good defence. The principal object in the centre of the village is the large sacred tree, on which are placed the heads of enemies taken in battle (Plate XVIII, fig. 2).

A few words concerning the manner of cultivating will suffice for all these non-kilted tribes, as it differs but slightly among them all. The process commonly known as "Jooming," from

the word "Joom," a field, a local term, consists in simply cutting down and burning the jungle on a hillside, and then cultivating on the natural slope of the ground thus cleared, instead of terracing as with the Angamis. These fields are of course not irrigated, and the fallen and charred timber is generally allowed to remain in the fields, lying across the slope, and helps to retain the soil which might otherwise be washed away during the rains. This mode of cultivating is common to the Lushais, Garos, all Nagas (except the Angamis) and across the Brahmaputra, the Miris, Mishmis, &c. I have previously referred to the crops raised by the Nagas generally, and also the cattle and domestic animals common to them all.

Passing along the hills in a north-easterly direction from the tribes just described, we come next to those known by the Assamese names of Hatigorias, Dupdorias, and Assiringias. The principal differences between these three are linguistic, and although all are far superior to the Lhotas in physique, manner, and bearing, and in the general well-to-do appearance of their villages, yet the Hatigorias (Plate XIX, fig. 1) bear off the palm in all these characteristics. Both men and women are, next to the Angamis, the best looking, best built, and most pleasing, perhaps, of the Naga tribes, with the exception of the inhabitants of the Yangmun valley. The Hatigoria women are remarkable for their good looks, many retaining them even in middle age. The dress of the three tribes is the same, consisting, for the males, of the small loin cloth, tied at the back, one end being brought round between the legs, and drawn up under the waistbelt, falls in front in a broad flap. These cloths are of various colours and patterns, and the Dupdorias fix small strips of brass in clusters down the edges of the flap, to give additional weight. The apron already described is also worn in full dress. The general decorations are the same as for the Rengmahs, &c., viz., the bearskin coronet (common also to the Angamis), cotton-wool bindings for the hair, and puffs for the ears, necklaces, &c. One ornament is peculiar to them, a defensive ornament for the chest. It is a long flat strip of wood about 15 inches long, narrow in the middle, but broadening towards the ends, and covered with coloured cane-work, cowries or white seeds, and adorned with a fringe of long red hair. It is worn on the chest suspended by a string round the neck. Two broad red and blue sashes also fringed with hair support at the back the dâo, and a small bucket for carrying panjis. The spears are similar to those already described. The dâos are similar to those of the Angamis, but among the Assiringias is found an approach to the long hair-tufted handles and broad blades common among the more eastern tribes. The shields are small, and either of canework or

of thin pieces of wood or hide painted black with white circles and spots on the front, and occasionally decorated with plumes. The Assiringias wear, in war-dress, tall conical helmets, adorned with boars' tusks, and two straight plumes of hair, one on each side, leaving the apex of the helmet bare. The clothes of these three tribes are many coloured, dark blue, with red and white stripes, or dark blue only, or red only, &c., and are frequently adorned with tufts of crimson and white hair sewn in rows at intervals along the stripes of the cloth.

The women's dress consists of a small petticoat of dark blue, a cloth of the same colour being thrown over the shoulders. They wear large brass rings on each brow, supported by a string passing round the head (Plate XX, fig. 1). Sometimes these rings pass through the upper portion of the ear, but generally they simply hang on the temples. The lobe of the ear supports large thick oval or oblong-shaped pieces of a crystal obtained from the plains. The women all tatto slightly: fine lines are drawn on the chin, the outer ones being tattooed from the corners of the mouth ; the front of the throat has a few crossed lines on it, three arrow-headed lines are tattooed on each breast, running up to the shoulders, and a fine diamond pattern runs down the centre of the stomach. The calf of the leg, from about 3 inches below the knee, is also tattooed with diagonal lines (like cross gartering): they also, like Khasia women, frequently wear cotton gaiters. The wrists are also tattooed with stars and stripes. The women's necklaces, are, as usual, beads or large pieces of shells strung on cotton.

Men, women, and children all smoke pipes similar to those described earlier.

The villages, as a rule, occupy the most commanding points along the ridges, and the approaches to them are exceedingly pretty. Broad roads, bordered with grass and low shrubs lead up through avenues of fine trees to the main entrance, which is generally very strongly guarded by two or three panjied ditches running right across the ridge and stockaded on the inner bank. The stockades are strongly built of a double line of posts supporting a wall of interlaced bamboo, and are capable of offering a good resistance. The outermost ditch is generally about 200 or 300 yards from the village, the second being situated between it and the one surrounding the village. The gate through the stockade of this last ditch into the village is cut out of one huge block, and is frequently 4 or 5 feet broad and 6 feet high. A large gable roof is constructed over it, giving it a great resemblance to our old lychgates. Look-outs are built commanding the entrances, and in some cases little huts are constructed in large trees outside the most advanced stockades on the main roads,

communications being preserved with the interior by means of long ladders and causeways. Passing through the gate into the village we find ourselves before the "morang," or bachelor's house (Plate XVII, fig. 1), a large and most peculiar looking building, appearing to be all roof, which springs from a small back gabled wall of bamboo about 5 feet high, and 6 or 7 feet broad. The ridge rises rapidly from this to the front, till it attains a height from the ground of 25 or 30 feet, the eaves resting on the ground on either side. The front is closed in with a semicircular wall of thatch, a small door about 4 feet high giving admittance to the building, which, as this is generally the only opening, is necessarily somewhat dark. As the eye gets accustomed to the gloom, though, we find that the house is divided into two parts by a low wall formed of a log of wood over which a thick bamboo mat is stretched. One-half of the house has a matted floor, and is provided with a hearth, and planked sleeping places round it, and here the young men live; but the other half is unfloored and is intended for the reception of casual visitors dropping in for a chat. We also make out that the principal uprights are carved with large figures of men, elephants, tigers, and lizards, &c., roughly painted with black, white, and a reddish brown. Arranged round the walls are skulls of men and animals, and skilful imitations of them made by cutting and painting old gourds. The ridge of the "morang" projects a few feet in front and is ornamented with small straw figures of men and tufts of straw. Outside each "morang" is a large platform of logs of wood on which the young men and their friends sit and smoke through the day, and hard by is an open shed, in which stands the big drum, formed out of the trunk of a huge tree hollowed out, and elaborately carved and painted in front, after the manner of the figure-head of a ship: it is furnished at the other end with a straight tail (Plate XVI, fig. 2). The drum is raised from the ground on logs of wood. It is sounded by letting a heavy piece of wood fall against it, and by beating it with double headed clubs. This drum calls the villagers together for war, or is beaten on festive occasions and gives forth a deep booming sound. Sometimes when an attack is expected from some neighbouring village, the drum is beaten at intervals throughout the night, in the hope that if the attacking party is on the way to the village it will, on hearing the drum sounding, consider that the villagers are on the alert and return home. In large villages there are two and even three "morangs" with their neighbouring drums. The other houses in the village are large and long, the front part resting on the ground, the back, as usual, being supported on bamboo piles, with platforms at the back and sides, in which many of the household duties are

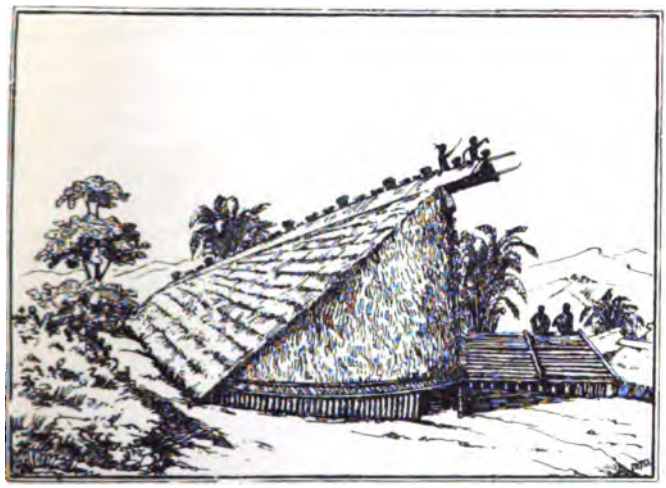


FIG. 1.



FIG. 2.

NAGA MORANG AND KHULAN MUTAN.

performed. There is a large open verandah in front, and the interior is divided into two or three rooms. The Hatigoria houses are the largest and best built, and are arranged most regularly, and closely adjacent on either side of long streets. The front gables project considerably, those of opposite houses nearly meeting over the roadway. In front of the houses are rows of skulls, and in one or two of the front verandahs we notice rows of curiously carved and painted posts about 3 feet high. These, we are told, are putup on the occasion of the owner of the house giving a big feast, and thereby proclaiming himself a man of substance. A village contains from 200 to 500 houses.

The bodies of the dead are wrapped in mats and disposed on platforms roofed over and fenced in. All the personal decorations and clothes of the deceased, his shield, &c., are arranged about the platform or fence. The ground around is sometimes panjied as a protection against the attacks of wild animals. The gourds and other domestic utensils belonging to the deceased are suspended from this platform for his use in the next world, holes being made in them to render them useless to any who might otherwise be tempted to steal them in this world. These bodies are placed in groups on either side of the road between the two outer stockades ,and consequently it is not always pleasant travelling along this road. Outside one village, called Boralangi we saw the body of a young man only a few hours dead stretched on a small "maichan"* without any covering except his cloth. This circumstance, and the fact that he was lying far from the regular resting place of the dead, excited our curiosity, and we were informed that he and another man from the next village had been at Boralangi the day before to attend a merry meeting, and had made too merry with the Naga liquor: in consequence of which, the night being dark and the path just outside the stockade a narrow and tortuous one, and a forest of long panjis, he had tripped and fallen, and a panji had passed right through him from side to side below the ribs, and he had died a few hours later. My informant added that men who died violent deaths in this way by accident were simply tied upon the spot where they fell, without covering or ornament, as their death is attributed to their having incurred the special disfavour of their gods. This custom obtains among many of the tribes.

The Hatigorias, as road engineers, far surpass their neighbours. Their roads are constructed with due regard to the easiest gradients, and are not carried up and down over every little hillock. The steeper parts are stepped and paved to prevent the rain washing channels in them, and in the gentler gradients cuts are made across the road at every change of inclination or

* *i.e.*, platform of bamboo.

direction in the most scientific manner to carry off the water down the hill side. Among some of the other tribes, the Lhotas, for example, the paths are narrow, never avoid obstacles and often seem made expressly to carry off the drainage of the country around. The mode of repairing them when the narrow path has been worn into a deep furrow, is to fill the latter with long tree trunks, the wobbling of which, and the steep slope at which they are often laid, making them very unsafe.

We pass on now to the tribes lying to the north-east of these we have just been considering, and they may be designated as the tribes inhabiting the hills bordering the Sibsagor district. Here we again find several villages, similar in every way to their neighbours, yet occupied by naked Nagas, and we find tattooing beginning to appear among the men, though not as yet on the face; only slightly on the arms and breast, a few fine lines running up from the navel and diverging on either side over the breast. The women's legs are tatooed below the knee with a cross gartering, and some have a cross tatooed on their stomachs, the navel being the centre and the arms of the cross all equal, the pattern of each arm being a long narrow oval bordered by two diverging lines four or five inches long. These naked Nagas are, as a rule, fine looking people, fair as to colour, and with some claim to good looks. The men's heads are shaved with the exception of a long tuft from the crown to the forehead, over which it lies. They wear nothing beyond belts of straw very tightly twisted round their waists. The women wear a strip of cloth about a foot wide round the hips, the upper part of the body being unclothed like the Garo women; they wear innumerable brass rings on the right arm, and the usual bead and shell necklaces. Both men and women chew pân to a great extent. The neighbouring Nagas differ only from this naked tribe by wearing a small waist cloth or rather flap made of a woody fibre woven into a coarse cloth. A few clothes thrown loosely over the shoulders are, of course, worn in cold weather. A general description of the villages, &c., will suffice for all here. The plan of the village is somewhat similar to that of the Hatigorias, &c., except that the fortifications are not so elaborate. The "Morangs" (bachelors' houses) are much more elaborately carved and ornamented than in any other part of the hills: figures of elephants, deer, tigers, &c., being carved on all the principal uprights, and, in some, life-sized figures of men and women, clothed and tatooed after life. The weather boards are carved with figures of birds and fishes, and painted in great detail with red, black, and white stripes, circles, and dots. The morangs are divided into three parts: first, the front verandah enclosed at the sides; second, the body of the house, containing the sleeping apart-

ments and storeroom on either side of a central passage (each sleeping room contains four planked bed places arranged in twos like the berths of a ship, one above the other, on either side of a small fireplace); third, a large room open to the small back verandah, this room contains a fireplace with a few planks as seats around it, and is floored with immense hollowed beams. In the back verandah, which has a low circular roof, are hung all the trophies of war and of the chase. The big drum is also kept here. A curious custom prevails in this district of decorating the skulls of enemies taken in battle with a pair of horns, either buffalo or methua, and failing these, with wooden imitations of them. The houses in these villages are similar to those already described, being raised from the ground, the ridges instead of being straight are hog-backed. They are very closely packed on either side of long streets, the eaves touching, and the projecting front gable-ends of opposite houses often overlapping each other: the result is that even in the middle of the brightest day the streets are wrapped in gloom so great as to make it difficult to distinguish objects in the front verandahs, the few flecks of sunlight which fall upon the roadway here and there only serving to make the darkness greater. In the front verandah of some of the houses is a small enclosed room containing a bed and fireplace. When an old woman is left a widow and without a home, her son (or nearest relation) provides her with this little chamber. Here, as I think very generally in these hills, a youth having taken a fancy to a girl, either of his own or neighbouring village, has to serve in her parents' house for a certain time, varying from one to two or more years according to agreement, before he can marry her, as was Jacob's case. Outside the villages, within a circle of staves surrounding two trees supporting a small platform, the harvest festivals take place. Large quantities of garlic are grown in these villages in small fenced gardens, panjis studding the ground between the plants.

In some villages the skull trophies are not placed in the morang, but are placed in the front verandah, decorated as usual with horns. The eldest brother in a family, in addition to his own trophies gets the skulls taken by his brothers, also to decorate his portals. Many of the verandahs contain a number of Y-shaped posts carved with human figures and methua heads. These signify that the occupant of the house has been the giver of a big feast.

The dead are sometimes, as at Tablung, &c., wrapped tightly up in mats, and, resting in a long canoe-shaped cradle of wood, the ends projecting and carved, are placed among the upper branches of big trees just outside the villages. In other parts they are placed in "maichans" inside small houses, the beaks

at the end of the coffin projecting through the front of the house. A small window is left at the side, I believe for the convenience of the dead man's spirit. These dead-houses, unlike the custom obtaining among the other tribes, are not outside the stockade, but actually within the village precincts, close to the dwellings; so in order to obviate any unpleasantness from the newly dead, fires are lighted in front of their resting places, the fuel being chaff and rice straw, which smoulders slowly, a plentiful supply of smoke being obtained by heaping over the fire a pile of green boughs and leaves.

The men of this tribe tattoo on the chest after taking their first head. The pattern consists of four lines which spring from the navel diverging as they ascend, and turn off into two large concentric curves over each breast, the lines broadening out to about one inch in width at the middle of the curves. The tattooing is done by scraping the skin with a dâo, a sharp stone, and rubbing in very finely pounded rice. The colouring matter is the juice of a berry which is crushed over the powdered rice and leaves an indelible black stain.

In the valley of the Yangmun river is an interesting tribe of whom I should like to have learned more than we did, but our time and our supplies were running short, and we could not remain to explore more than the entrance of the valley. The men are tall, well built, and in many cases handsome. Their dress and accoutrements are similar to those of their bretheren farther east whom I shall describe directly: their hair is dressed in a similar manner to that of the naked Nagas, *i.e.*, cut close everywhere except on the top of the head, where a thick tuft falls over the forehead, another long tuft hanging behind from the crown, the latter twisted up into a tail with a band of grass. There is very little, frequently no tattooing among these men till they approach the naked Nagas and adjoining tribes, when a little tattooing on the face and limbs is observable. The women in the Yangmun valley have a very peculiar mode of cutting their hair: it is kept so closely cut as only to leave a dark shade on the head: a narrow space on each side of the head being shaved perfectly clean from the temple to the crown. They wear very little clothing, a small belt of very fine leather thongs, to which in front are attached the upper corners of a long, narrow slip of cloth about 30 inches long and 6 inches broad; from this point it falls perfectly free and loosely round the loins and buttocks.

Very quaint designs are carved in slight relief on the planks forming the front walls and doors of the houses, the designs being further brought out by a judicious use of black, brownish red, yellow, and white pigments. The dead are placed on a

"maichan" raised about 4 feet from the ground, and covered with a low roof which gradually tapers out in front for about 20 or 30 feet. They build a large number of granaries in their fields for the reception of the crops when first gathered. These houses are long low structures on piles, having their roofs tapered up for a considerable length, at one end only, or at both. These curious buildings, dotting the bare hill-sides, and standing out against the dark red soil, look at a distance exactly like huge crocodiles lying about. Another striking feature in the landscape is a curious erection seen near most villages, which is visible a very long way off. It looks at a distance like a large silver chevron turned upside down. It is made of split pieces of wood with the white face turned outwards, placed close together vertically, and fastened to large curves of cane or bamboo, suspended between three trees: the whole length varies from 40 to 50 feet, and the average width is 6 feet, widening to 12 feet in the centre. We could not arrive at the meaning of these erections as we were here quite beyond interpretation; but they were always put up facing towards a village with which their builders were at war: there was no idea of fortification about them. In one village here we saw a very fine stone viaduct across a small ravine 50 feet in length and 20 feet in height with a most scientific culvert through it. As we leave the Angamis and proceed eastwards, we find the spears and shields getting smaller and the dâos getting larger till we reach in Yangmun and its neighbourhood the largest sized dâo, the blade being triangular in shape, 1½ foot long, 1½ inches broad at the handle, and about 4 inches at the end. The handle is long. Bows and cross-bows are common everywhere.

We now come to the tribes in the Jaipur district, including the men of Ninu, &c., who were concerned in the outrage on the Survey Party in February, 1875, when, in the incredibly brief space of a couple of minutes, Lieutenant Holcombe and 80 men were most treacherously murdered, and fifty-one others wounded, out of a total of 197 all told: the remainder of whom only escaped by the bravery and presence of mind of Captain Badgley, the Survey Officer, who, though severely wounded by cuts on both legs and arms, brought them safely away after a four days' march through the hills, carrying the wounded out with him. For this service I believe he has received not so much as even the thanks of Government.

The men are of average height and nearly all well made and well developed, and, as in the case with all their tribes, their complexion comprises every shade of brown. They would be good looking as a rule, but for the tattooing which in some cases, when done heavily, makes their faces almost black: in others

the tattooing is blue, and then the bare portion of the face, especially in those of fair complexion, appears pink by contrast. The tattooing on the face is called "Ak" (Plate XIX, fig. 3), and consists of four continuous lines carried across the forehead, round and underneath the eyes up to the nose, back over the cheeks, and round the corners of the mouth to the chin: rows of spots follow the outside lines, and two fine lines mark out the nose in a large diamond space. Some tribes, the Mutanias and Sermamens, do not tattoo much on the body, but their thighs are tattooed with various patterns; others, the Borduarias and Namsangias (Plate XX., fig. 2) are not tattooed at all on the face, but their shoulders, wrists, bodies and thighs are covered with devices. All the men of these tribes (Plate XXI) dress their hair in a similar fashion, *i.e.*, it is shaved just above the ears, the remainder being taken back off the forehead and face, and tied in a knot behind; through this knot are passed curved strips of horn carrying waves of red and white or black hair. Some men have a small moustache, but few show anything like a beard.

As we proceed eastwards from the Angamis we find a taste for helmets gradually developing, and it culminates among the tribes now under consideration. The helmet is conical in shape, and made of plaited cane, either plain or having patterns of coloured straw worked over it. A large plume of black or red hair passes over the helmet from front to rear, and long horns, carrying large feathers or tufts of hair, spring from the sides. Some helmets are covered with leopard or bear skin. Another headdress is a circular band of coloured cane and straw ornamented with bits of a large shell and a fringe of hog's hair which lies on the forehead. Their ear ornaments are generally strings of beads pendant from a piece of shell fitted to the ear, and terminating in long tufts of hair which fall over the chest. They have another pretty one made of alternate tufts of red, white, and black hair, radiating from a centre of yellow straw work, which is fixed in the lobe of the ear. From the shoulders to the elbows the men encase their arms in many rings of red and yellow cane, very large at the shoulder, gradually decreasing towards the elbow: these give an appearance of great breadth to their shoulders, an effect which is heightened by the bands of black or yellow cane which are drawn tightly round the waist. These canes are of great length: one man had as many as 19 turns round his waist giving a total length of cane of over 40 feet. Large belts, very broad at the back, fastening in front, and made of plates of polished brass or of coloured cane and cowries are also worn. A broad piece of blue cloth hangs from the waist ornamented with red fringes and rows of white seeds. On the

wrists are worn deep bracelets of cowries, and below the knee strings of the same are also tied. All these decorations, as I have before remarked, are intended to be defensive as well as ornamental. These Nagas are very skilful in devising little adornments from palm-leaves, making coronets, wristbands, and anklets of them. A curious custom prevails at a village called Voka, and probably also among the neighbouring villages: it is this—that till a young man is married he goes perfectly naked, but he at once adopts a waist cloth when he takes a wife. Every man carries about with him a small basket, a bag for his food, pân, &c. At one village every man carried against his apron a small bamboo cup full of live embers of sago palm bark placed in a layer of sand. This was for the purpose of supplying a pipe-light at any time, I was told. The weather was warm, so that it was not to supply heat to their bodies, as is done in a similar way in Cashmere in cold weather.

The women of these Eastern tribes (Plate XXII, fig. 2) are short in stature, and their figures are rather remarkable for strength than beauty. The shoulders are tattooed with diamond patterns, three horizontal lines are taken across the body above the breasts, between which eight lines go down to the waist narrowing gradually to a point: the navel is the centre of a Maltese cross, each arm about five inches long consists of three lines with a pointed finial. The leg tattoo is drawn with an admirable sense of fitness, that on the thighs consisting of close vertical lines and on the calves of horizontal lines, a small break occurring in each on the shin bone: this has the effect of increasing the apparent rotundity of the legs below the knees. The operation of tattooing is sometimes attended with fatal results. I was once asked to visit a poor little girl about ten years old whose legs had been tattooed a few days before. The operation had resulted in inflammation and mortification of the limbs. I went into the house where the poor little thing—sad votary of fashion—lay screaming with pain. The sores were dreadful, both legs apparently rotting away below the knee. I was only passing through the village, my camp being some miles away and could do little for her, and I fear she died a painful death. Fashion, whether in tight lacing or tattooing, claims its victims all over the world. The dress of the women consists principally of a very small petticoat 26 inches long and 6 inches deep, ornamented with bells, beads, and shells; this only comes a little more than half-way round the body leaving the right thigh bare,—it is attached at the ends and middle to a string passing round the waist. Sometimes a small cloth is worn on the shoulders. Many strings of beads fall low over the breasts. Small fillets of coloured straw adorn their brows, and

massive white metal rings are worn above the elbow. Their ear ornaments are small strings of beads passed through various holes.

The arms are, as usual, the dâo spear and crossbow. The first is a most formidable weapon, the blade triangular, about 8 inches long, straight at the back, and 4 inches wide at the top, narrowing gradually towards the handle, which is 2 feet long and ornamented with tufts of coloured hair; sometimes there is a semicircular projection at the back of the blade. The spears are not such handsome or formidable weapons as those further west, due probably to the fact that the dâo, and not the spear, is here the principal weapon of offence. The spear heads are small, and the shaft, though short and slender, is strongly made of bamboo and decorated with red and black hair in various fashions. The shield is small, about 4 feet long by 2 feet wide, made of buffalo hide decorated along the upper edge with a fringe of red hair, and on the face with some tassels of grass. Every man carries in a small basket or horn at his back a supply of panjies. Some wear a kind of defensive armour in the shape of a leathern corset, which overlaps on the chest, and is kept up by means of straps which pass over the shoulders. Gongs, which probably come indirectly from Burmah, are largely used by these tribes, and they cast bells in little clay moulds, the material being apparently a kind of gun-metal, and occasionally brass. The women carry long iron walking staves foliated at the upper end. Another lighter and prettier walking-stick among the Yangmun people is made of sago palm, decorated with brass rings and furnished with an iron spike.

The villages (Plate XVII, fig. 2) are not always well placed for defence against rifles, being commanded from some neighbouring height; but some, such as Bor Bansang, Senua, Niao, &c., are exceedingly well placed, occupying the highest points of the ridges on which they stand, and commanding all the approaches to them. The defences consist of double stockades made of interlaced bamboo and cane, with panjied ditches. The houses are generally scattered up and down without any attempt at order, and are half hidden among the trees, which are not, as elsewhere, cut down to clear a village site, such only being felled as interfere with the houses: these are built on the unlevelled ground, the floor being carried out to the rear on piles, the back verandah being frequently 20 or 30 feet from the ground. The house is divided into an entrance hall, where the owner's weapons hang, also skulls of animals taken in the chase, and beyond are several small apartments, terminating with a large open verandah. The principal uprights project some two



FIG. 1.



FIG. 2.

LHOTA NAGA VILLAGE AND GOLGOTHA.



FIG. 1.

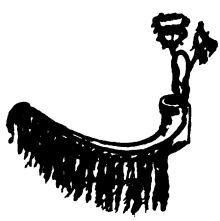


FIG. 2.



FIG. 3.

HATIGORIA MAN, RENGMAH NAGA TAIL, AND TATTOOED VANGAM OF SENUA.



FIG. 1.



FIG. 2.



SOIBANG, VANGAM OF CHOPNU.



FIG. 1.



FIG. 2.

BORDURIA NAGA, AND WIFE OF SOIBANG.

or three feet through the ridge of the roof, this portion of each post being thatched to keep the rain from trickling through into the house. This thatch is ingeniously worked into figures of men, &c. The reason given for this projection of the posts is that, as the part below the ground decays, it can be cut off and the post lowered without damage to the house. The Vangam's, *i.e.*, headman's house, is always very large, and built on the most level site in the village. It is generally about 200 feet long by 40 or 50 feet broad, and contains two large halls, one at either end, the intervening space being divided up into several apartments and storerooms arranged on either side of a central passage. Each of the women's apartments has its own door of exit, and small verandah. On one side of the entrance hall is the drum—similar to that of the Hatigorias. Opposite the drum is the rice pounder, a long log squared, with small holes, in which the rice is pounded out from the husks. The other hall is kept as an audience hall, where the chief receives his friends. It has a raised and matted floor, the rest of the house being on the bare ground. This hall opens into a large verandah; every house is furnished with a few small stools on short legs, and one or two large beds, which, with their legs and a bolster, are carved out of one log. Tables made of cane work shaped like huge inverted wine glasses, and about two and a half feet high, are used at meal times. In each village are one or two "morangs," in which are kept the skull trophies, placed in rows in a large sloping tray on the verandah. At Bor Mutan there were 210 bleached skulls arranged thus.

Between two villages we saw by the roadside a small table raised eight feet from the ground and approached on either side by a broad wooden ramp. We were told that here peace is concluded between the two villages after a war. The chiefs walking up, each from his own side, meet face to face on opposite sides of the table and exchanging "chungas"* of wine, drink to each other, and thus declare peace. On the road to Niao we saw on the ground a curious mud figure of a man in slight relief presenting a gong in the direction of Senua; this was supposed to show that the Niao men were willing to come to terms with Senua, then at war with Niao. Another mode of evincing a desire to turn away the wrath of an approaching enemy, and induce him to open negotiations, is to tie up in his path a couple of goats, sometimes also a gong, with the universal symbol of peace, a palm leaf planted in the ground hard by.

The dead are wrapped in mats and placed on platforms under

* Bamboo mugs.

small roofs, which are decorated with cloths and streamers, and have at each end a tall figure of wood dressed, painted, and tattooed after the manner of the men of the village, and carrying imitation spears and dâos; gourds, baskets, &c., being suspended above. At some villages the tombs are enclosed in small sheds with doors and are regular family vaults. These tombs are all just outside the villages. Cairns of stones are also erected, where the heads of departed villagers decorated with shells, beads, and bells are collected, earthen jars filled with the smaller bones being arranged beside the skulls. Each head is decorated so as to preserve its individuality.

In my paper on the Angamis I have said all that we know, or that I, at any rate, know, of the religion of the Nagas. I feel how meagre these papers of mine are, and how much more might be said about the Nagas and their peculiar customs, but I trust that I have said enough to show what a very interesting field of study these hills afford, and what a pleasant life the surveyor's was there, each day's march bringing something new before him, with just enough suspicion of danger to tinge his work with excitement. Personally, I shall never regret the few seasons spent in those hills, and the many pleasant memories they have left to me of work done and dangers shared with men I loved and honoured.

Explanation of Plates XVI to XXII.

Copies of the author's sketches reduced by photography from photozincographs executed at the Surveyor-General's Office, Calcutta.

PLATE XVI.

Fig. 1. Bachelor's House at Themukedima, Rengmah Nagas.
Fig. 2. Village Drum at Nunkum.

PLATE XVII.

Fig. 1. Morang, or Bachelor's House, at Nunkum.
Fig. 2. Khulan Mutan, looking south.

PLATE XVIII.

Fig. 1. Lhota Naga Village.
Fig. 2. Golgotha at Phurima, Lhota Nagas.

PLATE XIX.

Fig. 1. Hatigoria Naga Man.
Fig. 2. Tail worn by the Rengmah Nagas.
Fig. 3. Vangam of Senua, showing tatooing.

PLATE XX.

Fig. 1. Assiringia Naga Woman.
Fig. 2. A Namsangia Naga, showing tatooing.

PLATE XXI.

Soibang, Vangam of Chopnu (Bor Mutan).

PLATE XXII.

Fig. 1. A Borduaria Naga Man.
Fig. 2. Phemi, Wife of Soibang (Plate XXI).

DISCUSSION.

Colonel H. GODWIN-AUSTEN said that it was very remarkable to note in the Naga Hills the very short distances that have to be traversed, where the language is so changed that these village communities can scarcely understand each other. No doubt the constant state of hostility with their neighbours in which they live leads to this state of things, and the speaker could testify to all that the author had said as to the difficulties caused intentionally by the interpreters whom we have to employ, and who often are the cause of hostile attitude by the exaggerated reports they spread. He remarked that goitre is a disease equally local in the north-west Himalayas as in the Naga Hills, where it is often found in one valley affecting the greater number of the population, while it is quite absent in another valley close by. The patterns of the cloths being distinctive of the different clans,the speaker mentioned that it is still more interesting to state that the devices on their shields are also well known, and by which they distinguish friend from foe at long distances, and are veritable coats of arms. The placing of broken gourds on tombs is no doubt symbolical of death, and they are always placed with the mouth downwards. In the West Khasi Hills, on the tombs of women and girls, the cotton spindle she has wound are hung on the sides broken in half. The Lalus, a small clan in the North Jaintia Hills, place their dead in open coffins, raised several feet above the ground, which are left in this position after the dead body is taken out and burnt close by. The similarity of the pendant piece of wood hung from the waist, as shown in the drawing of the girl of the village of Chopnu to what the speaker had seen on a Bhuddist sculpture in the valley of Kashmir is remarkable. He obtained one at the village of Bijbihara on the Jhelum, which had just been dug out, and which he afterwards gave to the Museum of the Asiatic Society of Bengal in Calcutta.

Mr. HYDE CLARKE, in responding to Col. Godwin-Austen's observations as to the diversity of languages, proposed another explanation. Thus for *monkey* there were four words, for *elephant* three.

That these were not of local origin could be proved by tracing their affinities elsewhere, and then we find the four forms for monkey, *takwi*, *simai*, *veh*, and *suchi*, represented as *tekawu*, *dsima*, *wai*, and *tsakar*; the forms for elephant, *lokniu*, *puok*, and *shiti*, appearing as *ulonga*, *opowo*, and *ndshogo*. So in like way for many other words, as tiger, cow, goat, fish, head, ear, hair, mouth, hand, bone, blood, sun, moon, star, day, night, to-day, to-morrow, no, not, I, we, thou, you, he, they. Indeed, wherever tested, the general results were the same. Not only was this found to be so as to dissimilar roots, but as to dialectic variations for the *ma* and *nak* of *not*, for the *masi* and *nasi* of *cow*. These facts serve to show the position of the Naga languages, and to throw light on the early Naga history. The languages must be those of tribes, forming a league before the occupation of the Naga country, and becoming diversified or distinguished after occupation, not being variants from one original stock. Another result is this, that the languages belong to much higher culture than that now prevailing among the Nagas, and to a very ancient culture. The relation is to the group which included the Akkad, the Khita, and all that the speaker had described as Khitoid. One curious parallel is this way is with the *Eten* or *Eteng* of Peru, a similar isolated population. The languages are not those of populations in the present condition of the Nagas, but of higher populations and apparently of a white race. The Nagas represent sections of populations governed by a former dominant race driven up into the mountains, and there is no reason to assume that the Nagas are descendants of the dominant race, or that they have not been affected by the intermarriage or immigration of the neighbouring races. They transmit in all probability the languages of the races which gave the earliest culture to India, antecedent to the Kolarians and the Dravidians. There is not much difficulty in fixing this, as the ancient river and town, names of India preserved by the classic geographers conform to those found in other parts of Asia and in Europe, occupied by corresponding dominant populations, and which names are consequently anterior to the Aryans. The Naga languages are invaluable for investigations in pre-historic philology and archæology, and in this sense the tables of Colonel Woodthorpe are of more than local importance.

The PRESIDENT, Colonel KEATING, and Professor FLOWER also joined in the discussion.

Colonel WOODTHORPE, replying to the President and Colonel Keating, said that the only terraced fields are those belonging to the Angami Nagas. They were described in the previous paper. There are salt wells in many parts of the hills. The water is simply evaporated in small earthen pans over fires, and the rough salt collected and made up into small cakes enclosed in a case of bamboo leaves.

The following paper was then read by the author:—

On some NAGA SKULLS. By GEORGE D. THANE, *Professor of Anatomy in University College, London.*

THE Naga skulls which I have been able to examine, and a short account of which I propose to lay before the Institute, are five in number. Four of these belong to the Museum of the Royal College of Surgeons; the fifth was brought from the country by Colonel Woodthorpe. Three of the skulls are known to be those of males, the other two, judging from their appearance, are the skulls of females. I will for convenience of description name the skulls A, B, C, D, and E, as follows, and thus refer to them in the course of this communication.

A.—Roy. Coll. Surg. No. 793, from the Barnard Davis Collection: Thesaurus Craniorum, p. 173, "773, Naga, ♂, æt. c. 40. Fine skull of a freebooter shot on a plundering expedition. The internasal suture is quite oblique."*

B.—Roy. Coll. Surg., No. 794. From the Barnard Davis Collection: Thesaurus, p. 173, "774, Naga, ♂, æt. c. 20." "The calvarium of a servant-lad of Colonel Hanney's, said to have been about 18; but the crowns of the teeth, except *m* 3 on the left side, have been nearly worn away. Has a frontal suture. The nasal bones are as nearly absent as possible, being reduced to two merely perceptible particles, so that the orifice may be said to be formed by the superior maxillaries alone; and the *lamina perpendicularis ossis ethmoidei* descends below the diminutive nasals, and presents itself at the upper part of the fissure." The skull also exhibits some degree of oblique deformity, the right frontal and left parieto-occipital regions being flattened and the opposite regions bulged. There is no synostosis of the sutures. The lower jaw is wanting to this skull, and the zygomatic process of the left temporal bone is broken.

C.—Roy. Coll. Surg., No. 795. From the Barnard Davis Collection: Supplement, p. 28. "Naga," "Lentee" ♂, æt. c. 35. Has a frontal suture. Teeth are deeply stained with betel. He was murdered—it was supposed by his woman. There is an epipteric bone present on each side; that on the left side is particularly large. The lower jaw is wanting.

D.—Roy. Coll. Surg., No. 652a. Skull of a Naga from Ninu, in the Patkoi Mountains; lately presented to the Museum by Mr. F. d'O. Partridge. Apparently the skull of a female.

E.—Skull brought by Colonel Woodthorpe from the same neighbourhood as D. Also appears to be the skull of a female.

* It is further stated here that "The occipital, atlas, and dentata are all ossified together." The base of the skull is, however, quite normal, and there is no appearance of any anchylosis having existed between the occipital and atlas.

The skull E is remarkably decorated, wires being passed through the orbits and zygomatic arches, and supporting on each side highly polished portions of some porcellaneous shell, as well as five small bells below the face. D was adorned in a somewhat similar manner when received, a number of large rings of thick wire being placed through the zygomatic arches, nasal cavities, and orbits. The skulls have evidently been carefully cleaned and these objects placed on afterwards.

The skulls are all from adult, yet still young persons; in all the basilar synchondrosis is ossified, but the large sutures remain open, and show no indications of commencing union. In none of the skulls, moreover, have any of the teeth been lost during life, although those that are present are much worn, except in the case of C, in which the wear is but slight. In A and C the third molars of the upper jaw have not been developed, while in D there is absence of the third lower molar of the left side.

In their general features the skulls exhibit a great similarity; but to this statement A and C offer a striking exception in some of the most important characters of the face, as will appear in the course of the description. D and E are remarkably alike in all respects, as may be seen from the table of measurements.

The skulls are of moderate size, the average of the three males being 1377 c.c., and of the two females 1238 c.c. They thus belong, allowing for a difference of 10 per cent between the males and females, to the mesocephalic group of Professor Flower. The crania are smooth and rounded; the lines and muscular impressions on the occipital bone, and the temporal lines are but feebly marked; the mastoid processes are small; the inion very small or obsolete, in the males not exceeding No. 1 of the French "Instructions"; and the glabellar prominence and brow-ridges are reduced to a minimum. The degree of complication of the sutures about equals No. 4 of the "Instructions," and Wormian bones are scanty.

The average index of breadth is 78·1, the highest is in A, 80·2, the lowest is in C, 75. They are, therefore, as a group mesaticephalic. The index of height is nearly the same, but whereas in four the height decidedly exceeds the breadth, in B it is so much less that it brings the average height-index down to 78·4. The maximum transverse diameter is in all cases interparietal. The parietal eminences are well developed, and the forehead being narrow the cranium viewed from above has a markedly ovoidal figure, except in B, where the form is more oval. It is interesting to note that, of the two metopic skulls, B is especially characterized by a great breadth of forehead, while C has the narrowest forehead of the whole series.

In the lateral view the vault of the cranium is well arched,

forming a continuous and fairly regular curve from the nasion to the opisthion; the forehead in this view rises boldly, and is in the female especially upright, in the male it is a little more sloping, but cannot be said to be in any degree receding. In the occipital view there is a slight elevation along the line of the sagittal suture, with a little flattening on each side between this and the parietal eminences, thus causing an approach to the pentagonal conformation.

The face is of considerable length. The facial line is but little inclined, the degree of projection of the maxillæ, estimated by the method of Professor Flower, *i.e.*, the comparison of the basio-alveolar line with the basio-nasal line = 100, is expressed by the average gnathic index of 98·6: they are consequently mesognathous with a tendency to orthognathism. The orbits are rounded, the upper margin is sharp and but little prominent. The orbital index shows, however, a striking difference in form between the skulls A and C and the others; for while the index of B (male) is 83·3, and is thus microseme, and that of D and E (female) are somewhat higher, 86·8 and 86·5 (this index is usually a little higher in the female than in the male), in A it is 91·9, and in C it reaches the height of 94·1, and is therefore decidedly megaseme. In the form and proportions of the nose a similar peculiarity is presented by these skulls. In B, as above mentioned, the nasal bones are practically absent, and the upper part of the nose is formed by the expanded nasal processes of the superior maxillary bones; in D and E the nasal bones are of moderate size, and in all three the bridge of the nose is flattened, projecting forwards very little beyond the inner margins of the orbits, but at the same time not being depressed below the level of the glabella. In A, however, the nasal bones, although narrow, are as prominent as in an ordinary European skull.* So also the nasal index in B is 59·5, in D 57·4, and in E 56·5, giving an average of 57·8, that is, they are strongly platyrhine, while A has a nasal index of 46 and C of 47·2, so that both are leptorhine. In all the nasal spine is but little developed, 0 or 1 of the "Instructions."

Situated as these people are, on the confines of the great Mongolian territory, the condition of the malar bones must be a point of great interest. It is well known that the forward projection of the malar bones (to be measured by the naso-malar angle of Professor Flower), is very great in Mongolian races, and in this particular all our skulls are in accord. The average naso-malar angle is 144, and the highest two are A, 147, and C, 150, the skulls characterised by the high orbits and narrow nose. The malar bones are also large in proportion to the skulls, and the

* In C the nasal bones are broken.

zygomatic arches are prominent. They are phænozygous with the exception of B, with its metopic suture and broad forehead.

In another character, namely, the form of the palate and dental arch, these skulls agree, and present a noteworthy conformation. The palate is exceedingly broad, the dental arch is widely and regularly curved, *parabolic* in form.

Professor Flower has recently* proposed an improved method of expressing these relations, by means of the palato-maxillary index, and he has given the following examples: Tasmanian, 106; Australian, 107; English, 117; Eskimo, 124. I have examined with this object the maxillæ of 16 Chinese skulls, and have obtained an average index of 123. The five Naga skulls yield an average palato-maxillary index of 125, but while all have broad palates this very high average results from the extreme breadth in B, where the index is 134.

The skulls are too few to allow of any very certain conclusions being drawn as to the cranial characters of the Naga people, but the foregoing observations have been sufficient to demonstrate the close affinity of these skulls to the Mongolian type. The smoothness of the cranium, the flatness of the forehead and face, the slight development of the mastoid processes and of the muscular prominences and impressions, the moderate gnathism, the projection of the malar bones and consequent open naso-malar angle are all Mongolian characters, as would appear to be also the high palato-maxillary index. In order to show this more clearly I have placed side by side, in tabular order, the capacities and principal indices of these skulls, and of 18 Chinese skulls in the College of Surgeons' Museum, (*see* Catalogue, Part I, pp. 114-118), premising that the Chinese skulls are generally of a more robust development, and have the prominences and impressions more marked than is the case in the Naga skulls.

——	Chinese.	Nagas.
Capacity (Males)	1424	1377
Breadth-index	78·8	78·1
Height „	75·2	78·4
Gnathic „	99·0	96·6
Orbital „	89·9	88·5
Nasal „	49·8	53·3
Palato-maxillary index	123	125
Naso-malar angle	143	144

* "On the Cranial Characters of the Natives of the Fiji Islands," *see* Anthro. Journal, November, 1880. Professor Flower then used the name *maxillary index*. *Palatomaxillary index* has since been proposed by Professor Turner, as indicating more precisely the nature of the index.

See p. 219.

	Sex.	1 Capacity.	2 Length (ophryo-occipital).	2a Length (glabello-occipital.)	3 Height (basi-bregmatic).	4 Minimum frontal.	27 Basi-nasal length.	28 Basi-alveolar length.
A. Roy. Coll. Surg. 793... (Barnard Davis Coll. 773)	♂	1490	177	177	145	89	101	98
B. Roy. Coll. Surg. 794... (Barnard Davis Coll. 774)	♂	1340	179	179	133	110	94	94
C. Roy. Coll. Surg. 795... (Barnard Davis Coll. Supplement, 1750)	♂	1300	172	173	133	83	95	92
D. Roy. Coll. Surg. 652 A.	♀	1250	165	165	131	85	93	93
E. Col. Woodthorpe	♀	1225	166	165	131	89	92	91
Average	...	1377 of three males	...	...	...	...	...	...

	Sex.	29 Gnathic index.	Diameters of face.			33 Height of face (ophryon to alveolar point).	Of Ramus.	
			30 Bizygomatic.	31 Bijugal.	32 Interorbital.		56 Ant. post. breadth.	57 Mandibular angle.
A. Roy. Coll. Surg. 793 (Barnard Davis Coll. 773)	♂	9	137	121	23	92	35	124
B. Roy. Coll. Surg. 794... (Barnard Davis Coll. 774)	♂	100	...	113	28	83	...	...
C. Roy. Coll. Surg. 795... (Barnard Davis Coll. Supplement, 1750)	♂	96·8	134	110	21	88	...	...
D. Roy. Coll. Surg. 652 A.	♀	100	127	112	22	90	34	...
E. Col. Woodthorpe	♀	98·9	121	110	21	80	37	
Average	...	98·6	..	...	...	...	...	115

This table also brings to light some points of difference between the two groups in the index of height, in the orbital index, and especially in the nasal index. In reference to the last feature, however, it may be remarked that there is a considerable range of variation within the series of Chinese skulls, and while the tendency undoubtedly is towards the narrow form of nose, and there are some which agree closely with our skull A, both in the nasal index and in the prominence of the nasal bones, there are, among the eighteen, four which are to a greater or less extent platyrhine; and of these, one, No. 691 may be particularly mentioned, since it has a nasal index of 58·7, thus equalling our little group of B, D, and E (the skull shows altogether a great resemblance to D and E), and this is associated with an extremely low orbital index, viz., 75.

Thus a platyrhine form of skull with a microseme orbital index is not unknown, at least in individual cases, in an undoubtedly Mongolian family, but the question whether this is the prevailing condition amongst the inhabitants of the Naga Hills must remain to be settled by further observations.

The measurements in the appended table have been made in the manner recommended by Professor Flower, to whose kind assistance I am mainly indebted for the opportunity of making this communication. A full explanation of the terms and methods employed, in so far as they differ from the French "Instructions," is contained in Professor Flower's memoir already cited, "On the Cranial Characters of the Natives of the Fiji Islands."

THE SPREAD *of the* SLAVES.—PART IV.

THE BULGARIANS.

BY H. H. HOWORTH, Esq., F.S.A., M.A.I.

THE term Bulgaria has a twofold connotation which it is very necessary that we should keep constantly in view. There is a political Bulgaria, and an ethnographical Bulgaria. These two are essentially different in boundaries and otherwise. The former includes all the country which was subject to the Bulgarian Crown in the days of its greatest prosperity, the latter includes the area peopled by Bulgarians properly so called. The boundaries which separate them are not always easy to fix, for we must remember that, although the Bulgarians are a mixed race of Slaves and Turco-Ugrians, yet that in their language and other more readily discriminated characteristics they have

retained but few traces of the latter element in their composition, which has been absorbed by their former one. So that superficially the Slaves of Macedonia or Rumelia and the Bulgarians of Bulgaria proper north of the Balkans are now very nearly related indeed. So nearly related, that if the question of nationality is to govern the solution of political problems, it seems pedantic to separate them when we are treating the problem, not as one of ethnology, but as one of politics.

This, however, is complicated by another difficulty. It is comparatively easy to draw a line which shall separate the Slaves of Macedonia and Thrace from the litoral population which, whatever its mixed origin, is chiefly Greek or Turkish in language. It is similarly not difficult to define the corresponding boundary between the Macedonian Slaves and the Albanians. North of the Balkans, the problem is a more difficult one. If we accept the position, that whatever was subject to the Bulgarian Crown in the days of the Tzar Simeon, is to be included within the limits of Bulgaria, we must detach from Servia a very considerable area, and carry our boundary at least as far west as the Ibar and the Morava, and not merely to the Timok as is generally supposed. But letting this pass as one of the difficulties which prevent the recreation of the Bulgaria of Michael Boris and of Simeon in its integrity, and which has to be solved by a compromise involving a sacrifice on the part of Bulgaria, it will not be unprofitable to try and define the limits of this political Bulgaria towards the west and south. Accepting the test of language, and the postulate that pretty nearly all Slaves south of the Balkans were (as I believe they were) subject to the Tzar Simeon, we may accept the boundary line as fixed by the treaty of Saint Stephano as giving a very fair representation of the facts. This line no doubt errs on the side of including too little, for there can be very little doubt that, as we shall show in the next paper, even in Thessaly in the centuries preceding the 12th, there was a large element of Slavic origin, which has been absorbed by the more civilised Greeks. This boundary, however, represents very fairly the limits of what we may style Political Bulgaria. It has been admirably drawn in map 11a of Petermann's "Mittheilungen" for 1878. By Article 6 of the treaty of St. Stephano, the boundaries of the proposed Bulgaria, commencing with the north-eastern corner of the rectified frontier of Servia followed the eastern boundary of the Kaza Wrania district as far as the range of Karatagh, then bending south-westwards, ran along the eastern boundary of the Kazas of Kumanovo, Kotshani, and Kalkandelen as far as the mountain Korab, and thence along

the river Weleshchitza until its junction with the Black Drin. Then turning southwards following the Drin, and along the western verge of the Kaza Okhrid towards Mount Linas, then following the western limits of the Kazas of Gortcha and Starovo, as far as the mountain Grammos. Thence it passed by the Lake of Kastoria. The frontier then joined the river Moglenitza, and following its course south of Yanitsa to its outfall into the Ægean, past the mouth of the river Wardar to Galliko, past the villages of Parga and Saraikoi. Thence through the centre of the lake Beshikgol, and on again to the sea, thus cutting off the peninsula of Salonica, then along the coast past the mouths of the Struma and the Karasu as far as Burugol. Then turning to the north-west to the mountain Chaltepe, crossing the range of Rhodope to the mountain Krushovo, past the Kara Balkan, the peaks Eshek-Kulatshi, Chepeliu, Karakolas, and Ishiklar to the river Arta. Thence past the town of Chirmen, leaving Adrianople on the south, past the villages of Sugutliu, Karahamza, Arnautkoi, Akardshhi and Yenidshe to the river Tekederessi, following the course of the Tekederessi and the Chorluderessi as far as Luleburgas and thence past the river Sudshakdere to the village of Sergen, whence the line went in a straight line to Hakim-tabiassi where it reached the Euxine.

Such was the boundary of Bulgaria towards Turkey, as fixed by the treaty of St. Stephano. East and north of this limit, with the exception of some sporadic colonies of Vlakhs and gipseys, and of a certain partial element of Turkish and Circassian blood, the population is tolerably homogeneous in language, religion, and manners. I say tolerably homogeneous, meaning sufficiently so to satisfy political exigencies.

Ethnologically the population here referred to is not so homogeneous. As is well known, European Turkey was during the sixth century overrun by various Slavic tribes who settled there in great numbers, and extended their colonisation, in fact, as far as the Morea. This migration of Slaves will occupy us in the next paper of this series. Suffice it to say here that its result was that Mœsia and Thrace became virtually Slave countries, as they so largely are still.

This earlier migration, as I shall show in the next paper, took place chiefly under the leadership of Huns and Avars. It was when Mœsia was in this way settled by Slaves, and while the empire (especially its possessions on the Adriatic), was being devastated by the Avars that the Emperor Heraclius invited a body of Slaves led by Bulgarians, who were called Khrobati (*vide infra.*), to attack the latter, and allowed them to settle in Croatia. Shortly after, the Sabiri, another Hunnic race closely allied to the Bulgars, also settled south of the Danube under the auspices of

the Emperor, and as I believe secured all the country south-east of the Croats, and as far as the Euxine, so that the districts north of the Balkans became virtually divided between the Croats in the west and the Sabiri or Serbians in the east. This was about the years 630–640. About forty years later the Bulgarian Huns, driven forward by the Khazars, migrated in large numbers across the Danube, conquered the greater portion of the area already subject to the Sabiri, pushed the dominions of the latter back beyond the Morava, and founded the community which is now known as Bulgaria. The invaders were a caste of conquerors and became the proprietors of the land and the rulers of the new community, while the peasantry remained Slavic. This we shall show presently. The Bulgaria thus originally constituted was bounded on the east by the Euxine, on the south by the Balkans, and on the west by the Morava, and this may be described as ethnographic Bulgaria.

It was by no means homogeneous, as we shall show. The Bulgarian element proper, *i.e.*, the Hunnic element, prevailed chiefly in the Dobruja, and became weaker towards the Balkans and the Morava. It is with this settlement of the Bulgarians south of the Danube that our story properly begins. The various *raids* of Huns, Avars, and also of Bulgars south of the Danube, which took place before this settlement, and were for the most part merely temporary, we shall describe in a future paper.

When about the years 457-461 the Avars first appear in the Byzantine historians, we find them described as having driven forward the Saraguri, Urogi and Unnugari, and as having expelled the Sabiri from their former quarters. These tribes then settled in various parts of the old Hunnic land from the Carpathians to the Caucasus, the Sabiri chiefly settling north of the latter mountains. A hundred years later the Sarselt, the Unnugari, and Sabiri were again attacked by the Avars, who were then being pushed forward by the Turks, and who now migrated westwards as far as Pannonia, taking with them no doubt large contingents of these tribes, and thenceforward for many years it would seem that the Avars dominated over not only Pannonia, but also over the various Hunnic tribes of southern Russia, including the Sabiri and the Unnugari.

In a paper of the series on the westerly drifting of Nomades, I have already discussed the nationality of the Bulgars, and shown that they belonged to the Hunnic race, and were, in fact, Huns under another name. Since writing that paper I have met with some fresh information which enables me to specify more definitely the actual affinities of the race. I suggested in

the former memoir, that the Cheremisses are *probably* the descendants of the Bulgars, who founded the famous state of Great Bulgaria on the Middle Volga. This view I must now modify. In looking over the pages of Nestor, the Russian annalist, I find that he speaks of the Cheremisses and of the Bulgarians as separate peoples living at the same time. The Prince of the Cheremisses, in fact, assisting the Russians in their attack on Bulgaria (Nestor sub. ann. 1184, Ed. Paris, ii, 150).

Putting aside the Cheremisses, the only race on the Volga which has claims to represent the ancient Bulgars is that of the Chuvashes, and the latest Russian researches, especially those of M. Kunik, in his notes to Al Bekhri, make it very nearly certain that the Chuvashes in fact descend from the ancient Bulgars. The Chuvashes now speak a corrupt Turkish dialect, but all inquirers who have examined the question of their ethnology closely are agreed that this Turkish element is comparatively of recent origin, due probably to their having been so long in close contact with, and subject to, the Tartars. In physique, in manners, and customs, and in other respects the Chuvashes are Ugrians, and traces of their Ugrian origin survive, in fact, in their language. They represent, as I believe, most purely, except in their present Turkish speech, the Huns and Bulgars of the fifth and six century.

Let us now turn to our immediate subject; we have seen how the various Hunnic tribes were conquered by the Avars in the middle of the sixth century. It would seem that, although the Avars exercised a certain suzerainty over them, they preserved a separate organisation, and even claimed to elect a supreme Khan sometimes, and we read in the pages of the Frank chronicler Fredegar how, in the year 630, there arose a great commotion in Pannonia about the election of a king as to whether he should be an Avar or a Bulgarian. The rival parties fought together, and the Bulgarians were beaten, and 9,000 of them who had been expelled from Pannonia with their wives and children, went to Dagobert, the Frank king, and asked him to grant them a settlement within the Frank borders. Dagobert ordered winter quarters to be assigned them in Bavaria, which was accordingly done. When they were scattered about in quarters in this way, Dagobert, by the advice of the Franks, ordered the Bavarians that they should set upon and kill their guests; they accordingly did so, and none of the Bulgarians escaped, except Alticeus, or Alticcus, who with 700 men, women, and children, escaped to the March of the Winidi or Wends. He lived with Walluk, the chief of the Wends, for many years (Fredegar, c. 72; Zeuss, 716, 717). It is very probable, as Zeuss suggested, that this Alticeus is the Alzec, chief of the

Bulgarians mentioned by Paulus Diaconus, who tells us that a Bulgarian chief named Alzec, for some unknown cause, left his people, and went to Italy with ali his army, to King Grimoald, promising to serve him and to settle in his country. He directed him to go to his son, Romoald, at Beneventum, whom he ordered to find him a place to settle in. Romoald gladly received him, and gave him the districts of Sepianum, Bovianum, and Iserniam, in the mountains east of Naples (which at that time were unoccupied), with other lands. Paul adds that although in his day these colonists spoke Latin, yet they had not forgotten their mother tongue (P. D., v. 29; Zeuss, 717). Grimoald reigned from 661 till 670.

Let us revert again to the statement of Fredegar. I have very little doubt that the outbreak he mentions is the same described by Nicephorus, who in his notice of the reign of Heraclius, tells us that Kubrat, the cousin of Organa (? Urkhan) the ruler of the Hunnogunduri, rebelled against the Khakan of the Avars, drove out the people whom he had received from him, and afterwards sent an embassy to make peace with Heraclius, which lasted during their joint lives. Heraclius made him presents and gave him the title of Patrician (Stritter, ii, 501).

The explanation of the apparent contradiction between Fredegar and Nicephorus I take to be this. When Kubrat rebelled against the Avars, he became the ruler of the various hordes of Huns proper, extending from Pannonia to the Don, including possibly Transylvania and Wallachia, but the Avars succeeded in ejecting his supporters from Pannonia, which together with Illyria and the land west of the Morava, thenceforward became the Avar country proper.

It was a frequent custom with the Hunnic hordes to take their names from some noted leader, and it is therefore exceedingly probable that on their great outbreak the followers of Kubrat should have called themselves Kubrati, that is, Croats. I have argued in a previous paper of this series that the Croats or Khrobati of Croatia were so called from a leader named Kubrat or Khrubat. I would add here an addition to what I have there said, viz., that the native name of the Croats, given variously as Hr-wati, Horwati, cannot surely be a derivative of Khrebet, a mountain chain, as often urged, but is clearly the same as the well known man's name Horvath, familiar to the readers of Hungarian history and no doubt the equivalent of the Khrubat or Kubrat of the Byzantine writers, which name is given by them not only to the stem father of the Bulgarian kings, but to one of the five brothers who led the Croat migration.

I have also shown in previous papers of this series, that the

Croats were led by a caste of Hunnic race. These facts are very curious, and make it *à priori* not improbable that they may have taken their names from Kubrat, the leader of the Bulgarian revolt himself, and were in fact his subjects. Now on turning to the first time that we find mention of the Croats, which unfortunately is contained in the writings of Constantine Porphyrogenitus, who wrote in the tenth century, and therefore three centuries after the event, we read that Heraclius, being much distressed by the way in which the Avars were devastating Dalmatia, made overtures to some princes of the Krobati, offering them if they drove out the Avars from that district to allow them to settle there. They accordingly marched under five brothers, one of whom was called *Kubrat*, conquered the Avars in Illyria, and occupied the country. These Khrobati can surely be no others than the subjects of Kubrat the Patrician. It is exceedingly probable that at this time Mœsia was practically lost to the empire. We must remember that Kubrat, who doubtless dominated over Wallachia and its borders, was at deadly issue with the Avars, as we have seen, but was, on the other hand, on friendly terms with Heraclius. The latter would, therefore, naturally appeal to him for help, and there does not seem to be another solution available, for we must remember that the Avars were then masters of Pannonia. I showed in the last paper the great improbability that the Croats, who were in alliance with Heraclius, should have gone to him from the Carpathians. They were doubtless close neighbours of the empire when invited to attack the Avars, and in order to succeed against such a powerful race as the latter, must have been a strong nation, and not a mere handful of people fleeing from the Carpathians, nor does the narrative of the Byzantine author in fact demand this. He merely says the Croats who settled in Croatia came from the same stock, *i.e.*, belonged to the same race as the Croats of White Croatia.

The view here urged is confirmed in other ways; the five brothers who led the Croats seem to answer to the five sons of Kubrat, to whom we shall refer presently. Again, when the latter divided their father's heritage, one of them is said to have settled with his people in Pannonia. This exactly accords with the tradition about the Croats, which tells us that when they had occupied Dalmatia, one section of them separated from the rest, and moved into Pannonia. This section founded a separate principality there which I described in the paper on the Croats.

Let us now prosecute this clue somewhat further. We have seen how in all directions where we have traced them, the southern Slaves were led by a caste of Hunnic race. The case of the Serbs

I treated as somewhat doubtful, when writing about them, but I am now convinced that they formed no exception at all, and were as much as the other south-western Slaves led by Hunnic leaders. The name Serb has been a *crux* to every inquirer into Slavic ethnography. It occurs in the form Serbi, Sorabi, Severi, &c. Now it is very strange that one of the three main divisions of the Huns, as we have seen was called Sabiri, and these Sabiri occur frequently in the history of the beginning of the seventh century. Like the other Huns they were conquered by the Avars in the year 558, and afterwards by the Bulgars. What is more interesting is to find the Sabiri named as the allies of Heraclius in his wars with the Persians. It is not strange, therefore, they should have turned to him again at the time of the great upheaval in the Avarian empire, which we have mentioned, and thus it came about that shortly after the Croats had expelled the Avars from Dalmatia, the Sabiri or Serbs also went and asked Heraclius for quarters. He settled them eventually, as I have shown, in Mœsia, to the east of the Croats. As I now believe, their original settlement probably included the greater part of Bulgaria, as well as Serbia proper, and when the Bulgars finally settled south of the Danube in 678, we are expressly told that they subdued the Seberei or Seberenses, who occupied the country from the Balkan Pass, (called that of the Beregabi), eastward as far as the marshes, *i.e.*, the marshes of the Dobruja, and westward and southward as far as Avaria (Stritter, ii, 508, 509). It is curious that Schafarik, who actually identifies these Seberenses with the Hunnic Sabiri (*op. cit.* i, 332), does not seem to have seen that they were most probably of precisely the same stock as the leaders of the Serbians who founded the Servian state. We find another colony of them north of the Danube, called Severani, who occupied a district then known as the Severinian Banat, situated in the south-western corner of Wallachia. These Severanians, Schafarik, for some unknown reason, says must be clearly distinguished from the Hunnic Seberenses mentioned by Theophanes in 678 (*op. cit.* ii, 204). I confess I know of no reason why.

Having conquered the Seberenses the Bulgarians apparently held them in a more or less subordinate position, and we find a husbandman or hind still called Sabira or Sebr by the Bulgarians. The word has passed from them apparently to the neighbouring Slaves. In the law book of the Serbians, dating as far back as the reign of Stephen Dushan, in 1349, we find a rustic or peasant styled Sebr, and the same class is still called Sebar, Sibor, Cipor, &c., in Serbia and Dalmatia (Schafarik, i, 332). To sum up, therefore, the results of our reasoning, we hold that when the civil strife took place in Pannonia in the beginning of

ths seventh century, when the Avars asserted their supremacy, the other Huns were driven out. One section, as we have seen, took refuge with Dagobert; another, the White Croats, in Lusatia; a third, consisting of the Sabiri, and the associated tribes of the Obodriti, &c., followed the Elbe, and settled in Sorabia, &c., as far as the North Sea, in the way we explained in previous papers. Meanwhile, other sections of the race retired elsewhere; the Bulgarians re-asserted themselves in the steppes of Besserabia, and also planted themselves under the name of Croats in Dalmatia; while the Sabiri occupied Central and Eastern Mœsia. In all these cases save that of the Bulgarians proper the tribes who were scattered were Slaves while their leaders only were of Hunnic blood. Let us now revert once more to Kubrat.

There is a notice of a Hun under the name of Kuber which, although obscure, is very interesting. This is contained in the account of the miracles of St. Demetrius by an anonymous author contained in the 4th volume for October of the "Acta Sanctorum," and of which the date is uncertain. This notice, perhaps on account of its difficulty, has been passed over by Schafarik, Jiresek, and others. It reports that about the middle of the seventh century, the Slaves having made an attack on the empire and been beaten, appealed for aid to the Khakan of the Avars, offering him rich presents and also to make over to him certain districts among themselves where his people might settle. This invitation the Khakan responded to with alacrity and set out with the various barbarous nations subject to him, together with all the Slaves and Bulgarians, and marched towards Thessalonica where several miracles were performed much to the terror of the invaders, who withdrew (*op. cit.* 166–170). The Avars had wasted a great part of Thrace, &c., and repaired to Sirmium on the Danube with their booty and prisoners. There we are told the Avars, Bulgars, and other races mixed together and interbred with their captives and increased very largely in numbers, adopting Roman manners. We are further told the Avar Khakan set over the new nation thus created a chief named Kuber, who apparently had his capital at Sirmium. Presently, says the chronicler, like the Israelites in Egypt, the subjects of the latter began to be rebellious against the Avar Khakan. Thereupon the latter attacked them, but having been beaten in several fights he withdrew northwards, whereupon Kuber with his people crossed the Danube, within the Roman borders, and settled down in the plain of Karamesios, and many of his people who were Christians, and who as above reported had been carried off as captives, left Kuber and returned once more to their homes in various parts of

Thrace (*id.* 179, 180). This was naturally very distasteful to Kuber and his followers, who thus saw their power gradually becoming dissipated. The migration continued, however, and Kuber and his chiefs thereupon determined upon a plot. They chose the one among them who was shrewdest and could speak Greek and Latin, *Slave and Bulgarian*, who was instructed to go to Thessalonica and make his submission; then to get a party round him, create a strife in the city and capture it, so that Kuber and his people might settle there and thence harry the neighbouring nations, the islands, and the mainland of Greece. The worthy thus chosen was named Maurus, who was of Roman origin. The Emperor received his submission graciously, and presented him with the Consular insignia. He also obtained that the fugitives who had withdrawn their allegiance from Kuber, and who he professed belonged to him, were made over to him, and he was made their chief. Many who knew his antecedents did not hide their discontent, whereupon he decapitated those whom he suspected, and sold their wives and children into slavery. He duly appointed centurions and other commanders, and soon had secured a body of people ready to do his bidding who commenced making broils inside the city, and also caused several fires. The opportune arrival of a considerable force, and the treachery of the son of Maurus, who disclosed the plot which his father and Kuber had made to the Emperor, prevented the hatching of any further mischief. Maurus was deprived of his command, but given a minor office near the city (*id.* 184). Of Kuber we read nothing more in this curious work, and it would seem that he withdrew northwards. Such is the notice which evidently as the editors of the "Acta Sanctorum" argue most forcibly, doubtless refers to Kubrat and his dealings with the Empire, and it points to his having been well known south of the Danube. We will now pass on again.

The history of the beginning of the Bulgarian royal house is contained in two documents: one a native saga which was apparently originally written in Greek letters, and afterwards translated into Slavic, and which occurs in an early Slave MS. This document professes to give a list of Bulgarian chiefs from the earliest time to the year 765. It is written for the most part in Slavic, but has a number of barbarous words intercalated which have been with good reason appropriated to the Ugrian or proper Bulgarians. The list begins with two princes who are both assigned patriarchal ages, and are both said to have belonged to the family of Dulo. The name I would suggest is a corruption of Attila, and the Duloids answer to the Attilides mentioned by Jornandes. The first named of the house is Avitokhol, said to have reigned 300 years. He is assuredly no other than

Attila himself. Then follows a usurper Irnik, who is said to have reigned for 150 years, who is in my view the Irnik or Hernakh, son of Attila, who is expressly said to have settled in the Lesser Scythia, *i.e.*, the Dobruja. (Jornandes de Reb. Get. 5.) After Irnik there follows a usurper named Gostun, whose name is Slavic, who belonged to family Yermi, and whose reign lasted two years.

This surely points to a break in the continuity of Hunnic history which we knew took place on the disappearance of Hernakh and his brothers. Gostun was followed by two Duloids, Kurt, who reigned 60 years—and who has been identified, I think improbably, with the Kubrat of the Byzantine authors by Jiresek—and Besmer, who reigned three, under whom we are told the Bulgars settled on the Danube. Then followed Isperikh (Jiresek, 127, note). This story is valuable not merely for preserving an independent list of names, but also as making it probable that in the native legends the royal house of Bulgaria belonged to the family of Attila.

The other tradition which in my view is of hardly any value is preserved by the chorographer Theophanes. He tells us that Khrobat, the king of the Bulgarians, left five sons, and bade them cling together against their enemies and not move far from their country. On his death they divided the kingdom among them, the eldest Batbaias or Batbaian (Nicephorus calls him Basian), careful of his fathers mandate, "occupies his paternal hearth even to this day." The second, Kotragus, having crossed the Tanais or Don, settled opposite the country of his brother. The fourth and fifth having recrossed the Danube, the former went to Avarian Pannonia and became subject to the Khakan of the Avars. The other one, however, went to Ravenna, and became subject to the Christians. The third brother, called Asparukh, having crossed the Dnieper and the Dniester, settled on a river called Onklos. (Stritter, ii, 504, 505.) Jiresek has remarked that this passage upon which nearly all the subsequent accounts of the foundation of the Bulgarian polity have been based is vitiated by a patent anachronism, since it makes the Bulgars first reach the Danube in the seventh century, whereas we know (as we shall amply show in the next paper) that they had been there long before; but this, in my view, is a very small objection to what is in fact a mere congeries of incongruous traditions.

The eldest son Batbaian, we are told, ruled his father's old country "to this day." That is Theophanes, who wrote late in the eighth century, makes himself a contemporary of a son of Kubrat who was certainly an active leader in 630. Great Bulgarians no doubt existed on the Volga in the time of Theophanes,

and he had no doubt heard of it, but its king who was living in his time could not have been the son of Kubrat. Again, the reference to Kotrag, who lived near his brother, is doubtless founded on a confusion with Kotrag, the founder of the horde of the Kotraguri who did live west of the Don, but had lived there long before this date. Again, the fourth and fifth sons are said to have recrossed the Danube, one into Pannonia, where he settled, while the other went to Italy. The recrossing of the Danube into Pannonia could only be effected from south to north, and involves the position that the Bulgars were already south of the Danube. This clause can only refer to the section of the Khrobati or Croats who did cross the Danube and settle in Pannonia, and were the only Bulgarians known to me who did so, but this was soon after Kubrat's own outbreak, and long before his death. The section which went to Italy under a fourth son is assuredly no other than the band of the Bulgarians which migrated thither under Alzek, but he again could hardly have been a son of Kubrat. At every stage, therefore, the story of Theophanes breaks to pieces. The knowledge he had of these northern parts may be gauged from the fact that he makes the Tanais or Don, which he brings from the Caucasus, a tributary of the Atal or Volga, and makes these two rivers give birth to the Kuphis or Kuban, in which the Xystus, a Bulgarian fish, was caught, and where he says Old (*i.e.*, Great) Bulgaria and the region of the Kotrragi who were tributaries of the Bulgarians were.

When Kurt died we know not, and from the genealogical table above quoted he was doubtless succeeded by Besmer who was in turn succeeded by Isperikh or Asparukh, a name of apparently Persian origin. He is mentioned both in the native list and by Theophanes, who assigns to him the crossing of the Danube, when the Bulgars finally settled in Mœsia. This migration was, I believe, induced by the invasion of the Khazars, as suggested by Theophanes himself. This invasion apparently first took place during the reign of Constantine the Second (642–668), and during the next few years the Khazars apparently subdued the various Hunnic tribes of Southern Russia, and I believe their campaigns caused the migration of Isperikh and his people to the south of the Danube.

It was under Asparukh or Isperikh, as the famous gloss calls him, that the Bulgarians first settled south of the Danube. His people had previously lived in the district north of that river called Oglos by Nicephorus, which, as Schafarik pointed out, answers to the old Slave Agl or Ongl, Polish Wegiel or Wengiel, Latin Angulus, and doubtless referred to the corner enclosed by the Black Sea, the Danube, and the Pruth known as

Budzak, *i.e.*, corner (Schafarik, ii, 163, note 2; Jiresek Gesch. von Bulgaren, 129). Theophanes calls it Onclus, and says it was a river. Thence they made raids across the Danube, and about the year 678 the Emperor Constantine Pogonatos collected a large force from the different parts of Thrace and prepared a naval and military expedition to punish them. He sent his ships to the mouths of the Danube, while his soldiers made their way to Oglos. The Bulgarians, afraid of his preparations, retired to their fortresses, where the Imperial troops dared not assail them on account of the neighbouring marshes. The Emperor was meanwhile attacked with gout and left with his family on five fast ships to go to the baths of Mesembria, ordering his generals to try and bring on an engagement or to keep the enemy blockaded till his return. The soldiers fancied that he had fled, nor could the officers, who presented the points of their swords, restrain them, and after a short delay they began to retire. They were attacked in their retreat by the Bulgarians and apparently lost many men. The Bulgarians then crossed the river and advanced as far as Varna and subdued the country between the Black Sea and the river (that is the district of the Dobruja) and subdued the seven tribes of Slavini who lived there. They also made tributary the Seberenses, who lived between the marshes of the Dobruja and the Balkan pass of Beregaba and westward, and the seven tribes who lived towards the south and west as far as Avaria, *i.e.*, the country which had been subdued by the Avars (Stritter, ii, 508, 509), that is probably westward as far as the Serbian Morava and Belgrade (Schafarik, ii, 164, 165), and of which we have made mention in the former paper on the Serbians. The Dobruja and the watershed of Kamsiya, or Kamchek, as Jiresek says, were till the tenth century the focus and kernel of the Bulgarian kingdom. Preslaf, on the Great Kamsiya, was the capital, and Drster (the modern Silistria) the fortress of the kingdom. It is strange that it is in this very district that to this day the Turks and Tartars have their principal seats. All the expeditions of the Byzantine troops against the Bulgarians in the eighth and ninth centuries were not westwards by way of Philippopolis towards Sophia or Tirnova, but in the direction of the mouths of the Danube and the district of Varna (*op. cit.* 131). It is a curious fate, therefore, which has overtaken the Dobruja that it should have been detached from Bulgaria and joined to Roumania in the new arrangement of the European map. We must remember, however, that this area was one in which many race revolutions took place afterwards, and that Tartars and Turks now form its main population. But to revert to the Bulgarians proper. They were clearly only a conquering

caste of foreigners supplying the upper ranks of the social structure and giving their name to the country while the great bulk of the population remained what it had been before, Slavic. It was a case, as has been pointed out, similar to the settlement of the Franks in Gaul, of the Norsemen in Normandy, the Lombards in Lombardy, and the Romans, or Romaioi, in the old land of the Hellenes. In all cases it was a conquering and superior caste coming in and changing the name and invigorating the blood of a race previously occupying the land. Sigebert who copied the so-called "Historia Miscella," which was probably composed by Paulus Diaconus, dates the defeat of Constantine in the year 680 and calls the Bulgarian king Bathaia (Pertz, vi, 326). Thenceforward Mœsia was lost to the Byzantine empire, and its fair towns and fields became the prey of the Nomades from the east. The Emperor Constantine Pogonatos agreed to pay them tribute or black mail under the guise of an annual pension, in order to protect his frontiers from attack, and Thrace south of the Balkans was reorganized as a thema and was placed under the jurisdiction of a prætor (Stritter, ii, 509). Well might the chronicler bewail that the former mistress of the east and west should be constrained to pay tribute to this unclean race.

Constantine's son Justinian the Second, Rhinotmetos, proposed to break off this hateful yoke and to subdue the Bulgarians and Slavini. He ordered the mounted legions to pass over into Thrace, which had been invaded by the Bulgarians, whom he defeated. He also invaded the country occupied by the Slaves, who were probably more or less subject to the Bulgars, and went as far as Thessalonica. He planted some of them as tributaries in the mountains west of the Strymon, and transported a great number of others into Asia, where they were settled in the districts of Opsicium and Abydos. On his return from this campaign he was waylaid in the defiles of Mount Rhodope, and lost many of his men, and only reached home again with difficulty (*id.* 510). This campaign, according to the Byzantine writers, took place in 686–7. Sigebert dates it in 689 (Pertz, vi, 327).

According to the royal catalogue already mentioned, Isperikh reigned for 60 years, *i.e.* from about 640-700 (Jiresek, 140), and was succeeded by Tervel, who is called Terbeles by the Greeks and Therbellis by Sigebert, and who also belonged to the family of Dulo. In 702 Justinian, who had been driven away from Constantinople, and exiled to the Crimea, had made his way to the court of the ruler of the Khazars, and had married his sister Theodora (Sigebert says he fled to Caian, ruler of the Avars), but having been warned that his brother-in-law intended to hand him over to his enemies at Byzantium, he set sail in a small ship and reached the mouth of the Danube. He then despatched

a messenger to Tervel, asking him to assist him in reconquering his throne, and promising to reward him in a lordly fashion, and also to give him his daughter's hand in marriage. Tervel agreed to help him, and he set out for Constantinople with a large force of Bulgarians and Slaves, which numbered about 15,000. He duly approached the city, to which he gained access by the assistance of his friends, and again occupied the throne. He rewarded his ally the Bulgarian king with rich presents, and also ceded to him the district of Zagoria (*i.e.*, in Slave, the mountain country) the ancient Debeltos, situated between Shumla and the Black Sea towards Burghaz.

Schafarik says the district was not completely united to Bulgaria till the year 861; Nicephorus and Kedrenus both pointedly refer to it as *now* called Zagoria (Lebeau, xii, 60-64; Stritter, ii, 511-514; Schafarik, ii, 171). Justinian was not a very faithful ally, and in 705 he went with a fleet and army to Anchialus. The Bulgarians meanwhile retired to their fastnesses; thereupon the Romans, having scattered themselves over the surrounding country for the purpose of foraging, were suddenly attacked and lost a great number of prisoners, horses, and waggons. The Emperor and the rest of them regained the fortress, whence, after making an ignominious display of bravado on the walls, he suddenly took his departure in the night and returned to his capital (Stritter, 514, 515). In 708, when Justinian was being pressed by his rival Philippicus, he again appealed to the Bulgarian king, who sent him 3,000 soldiers. This dissolute prince was deposed in 711 without a blow, whereupon Philippicus allowed the Bulgarians to return home again (*id.* 515, 516). Suidas reports that Tervel, in measuring out the tribute due to him, used to place his shield on the ground, and drew the money into it with his whip; he also planted his spear in the ground, and insisted upon pieces of silk being piled up around it to a considerable height, and exacted as a reward for his soldiers that their right hands should be filled with gold, and their left ones with silver (*id.* 516; Lebeau, xii, 64).

In the year 712, during the reign of Philippicus, the Bulgarians advanced to the Gulf of Céras. So quick was their march, that it was only known at Constantinople when the suburb of Syques was seen to be in flames. A rich citizen was being married there, and a mass of plate and other objects prepared for a sumptuous feast was captured by the invaders. They made a horrible slaughter of the guests, and advanced as far as the Golden Gate of Byzantium, overran Thrace, and returned with a crowd of prisoners and of domestic animals, and reached their homes in safety (Stritter, *op. cit.*, 516, 517; Lebeau, xii, 86).

Theodosius the Third was a feeble creature. He had been suddenly raised to the purple from the position of a small tax-gatherer, and had an ephemeral reign of a few months. In 716 A.D. Theophanes tells us he made an unfortunate peace with the Bulgarians, to whom he abandoned a part of Thrace; the Imperial frontier was fixed at a place called Meleona, identified by Schafarik with Menalion in the Balkans, and an annual tribute of rich stuffs, and of skins dyed red (*i.e.*, no doubt of the famous Bulgarian leather)—the precursors of our Russia leather—to the value of 30 pounds of gold, was to be paid. It was agreed that fugitives who had taken refuge in either country should be given up, and that merchants with proper credentials should have free right of trafficking (Stritter, 517, 518). Theophanes who who tells us these facts, calls the Bulgarian king Komersios, but this is apparently an anachronism. He did not probably reign till later.

Theodosius was succeeded by Leo the Isaurian, who won a speedy fame by repelling the attack which the Saracens in 717, made upon Constantinople. After a vigorous siege prosecuted with their usual ardour and with immense resources the Saracens were foiled and had to withdraw. As they marched towards his ships, which were at anchor below Constantinople, they were attacked by the Bulgarians, who more out of fear that they might have these martial freebooters for neighbours, than out of any love for the Romans, attacked them and caused them a loss of 22,000 men (Stritter, *op. cit.* 518; Lebeau, xii, 123). This is dated by Sigebert in 718. He says the Saracens lost 30,000 men (Pertz, vi, 329). Meanwhile Anastasius, who had been on the throne, and been compelled to retire and become a priest, began to aspire once more to reign, and *inter alia* opened communications with Sisinius, the Imperial envoy at the Court of Tervel, to secure the assistance of the latter. Tervel, we are told, furnished his friend with 5,000 pounds of gold to defray the cost of his enterprise, while the latter opened secret negotiations with several officials at the Court. The Bulgarians had arrived at Heraclea, the ancient Perinthus, where they collected a number of boats, on which to move upon Constantinople. Leo having heard of all this, threatened the Bulgarians with his vengeance, and at the same time offered them a large sum of money, whereupon they treacherously surrendered Anastasius and the Archbishop of Thessalonica, who were duly decapitated (Stritter, *op. cit.*, 519, 520; Lebeau, xii, 127).

We do not again read of the Bulgarians in the Byzantine annals till the year 755; but in the indigenous list of kings previously quoted, we read that Tervel reigned 21 years, *i.e.*, till

720. He was followed by another chief of the family of Dulo, whose name has unfortunately been erased, and he by another Duloid, named Sevar, who reigned five years, that is, till 753. This authority makes him be succeeded by Kormisos, who belonged to another stock, namely, that of Ukil or Vokil, and who was probably a usurper (Jiresek, 127 and 140). He is mentioned by the Byzantine writers who call him Kormesios. Theophanes, who apparently antedates him, calls him Komersios (Stritter, ii, 517, note 24). I may say that Sigebert, under the year 727, has the phrase "Cormisus Bulgaribus dominatur" (Pertz, vi, 330).

In 755 the famous Iconoclast Emperor, Constantine the Fifth, Copronymos, whose energy against the enemies of the empire was as remarkable as his fanatical hatred of monks and images, founded some new towns in Thrace, and peopled them with Syrian and Armenian colonists. While these towns were being built, the Bulgarians appeared and demanded tribute, which being refused them, they proceeded to devastate Thrace, and advanced as far as the famous long walls. The Emperor offered them battle, defeated them, and pursuing their army killed many of them. He then prepared a large naval and land force with which to punish them. With a fleet of 500 ships he approached the Danube, and then harried the land of the Bulgarians and made many captives. He gained a fresh victory over them near the fort of the Markellians, situated on the Bulgarian frontier, and they were constrained to sue for peace, and to offer their children as hostages (Stritter, ii, 520, 521; Lebeau, xii, 231, 232).

In 759 the Emperor again advanced against the Bulgarians who had molested the empire in alliance with the Macedonian Slavini and approached Beregaba, one of the Eastern passes of the Balkans, probably either Nadir Derbend or the mule track from Mesembria to Varna by way of Emineh (Jiresek, 141), but the Bulgarians waylaid his people in the passes, many of them, including some prominent officials, were killed, and their army made a somewhat ignominious retreat (*id.* 521).

According to the catalogue of Bulgarian kings above cited, Kormisos reigned 17 years. This Jiresek would correct, with some probability, to seven, and make him reign from 753-760 (*op. cit.* 140). Kormisos, as we have seen, was an usurper, and did not belong to the old royal stock of Dulo, and we now read that a great internal convulsion took place among the Bulgarians. They extirpated the old royal house (*i.e.*, that of Dulo), and elected a prince named Teletzis or Teleutzas, an arrogant and conceited young man, who was 30 years old, to the throne (Stritter, ii, 522). He is mentioned in the catalogue of Princes, and is there called Telec, and is stated to have been of the family of Ugain (Jiresek, 127 and 142).

In consequence of this revolution a great crowd of Slavini, to the number of 208,000, left their country, and were allowed by the Emperor to settle on the river Artanas in Bythinia (Stritter, ii, 522; Schafarik, ii, 172). Telec having collected a large force invaded the borders of the Empire, whereupon the Emperor Constantine despatched an armament of 800 boats, each carrying 12 horses, to the Lower Danube. He himself marched to Anchialus, where Telec went to meet him at the head of his Bulgarians, and with 20,000 Slavinian auxiliaries. The latter was defeated in a battle fought on the 30th of June, and lasting from eight in the morning till sunset, and many, both Bulgarians and Slavini, were killed, and several of their chiefs were made prisoners. The captives were taken to Byzantium and executed outside the walls in batches by the several factions of the Circus, and in the triumph which followed we are told that *inter alia* two gold basins which the Bulgarian kings had had made in Sicily, and each weighing 800 pounds, were exhibited among the spoils (Stritter, 523, 524 ; Lebeau, xii, 244).

We now come upon a period of revolution and discord in Bulgaria. The Bulgarians, in consequence of their disastrous defeat, rose in revolt against Telec, whom they killed with several of his chief men. They then raised Sabinus, whom Theophanes calls a relative of Kormisos, and Schafarik and Jiresek, I know not on what authority, his son in-law (Stritter, ii, 524; Schafarik, ii, 172; Jiresek, 142) to the throne. But he having immediately sent envoys to arrange a peace, was charged with a desire to put the kingdom under subjection to the Emperor, and a tumultuous assembly having met, where he was much assailed, he deemed it prudent to fly, and went to Mesembria, and thence to the Emperor with his intimate friends. Their wives and children hid away for fear of the insurgents, and were at length rescued by some officers sent by Constantine (Stritter, 524). Sabinus was apparently not a native Bulgarian, since he bore a Roman name, and his authority was doubtless very transient. He is not mentioned in the indigenous list of kings.

The Bulgarians now put a new chief named Paganus or Pagarus, as he is called in a gloss to Anastasius (both probably a corruption of Bayan, Jiresek, 142) in his place. This took place in 762.

Two years later Paganus sent envoys to demand peace from the Emperor, and then went in person with his *boilades* and chieftains to the latter's presence. He found him seated on his throne with Sabinus seated beside him. The Emperor apparently detained Paganus and his grandees, upbraided them for their conduct to Sabinus, and then made a hollow peace with them. He furtively sent smoe of his people into Bulgaria, who seized

upon a chief of the Slavini, who according to one reading of Theophanes, was named Seberus, while another makes him a leader of the Seberian Slavini who had committed much ravage in Thrace. They also seized an apostate Christian, a leader of the mountain brigands, called Skamari, and having cut off his hands and feet, made him over to the doctors, who opened his body while he was still living and made a public demonstration of anatomy on the mole of St. Thomas, after which he was thrown into the fire (Stritter, 526; Lebeau, xii, 250, 251). Shortly after this the Emperor again invaded Bulgaria, the outposts to which were bare of defenders, because of the recently made peace, and went as far as Tuntzas, or Tzikas, *i.e.*, the river Tytscha, laid the country waste, and then returned in a panic without effecting anything (*id.* 526; Schafarik, ii, 172).

The next year Constantine again invaded Bulgaria, where the people had driven out Umar or Omar, the nominee of Sabinus, and had put Toktu, the brother of Bayan, in his place. This Omar is the last of the Bulgarian rulers named in the native list so often mentioned. His name is clearly not Ugrian, and points to the influence of Mohammedanism having already been potent among the Bulgarians. Omar, according to the list, was of the family of Ukil. It makes him immediately succeed Telec.

On the approach of the Emperor, as I have mentioned, the Bulgarians fled to the woods about the Lower Danube. Nevertheless a large number of them were killed, including Toktu and his brother Bayan, who, if the same person as Paganus, had apparently returned again to his own country.

Another of their leaders, whom they called Campaganus (he is identified with Paganus by St. Martin (Lebeau, xii, 252, note 2), fled towards Varna, and had virtually escaped when he was put to death by his slaves. The Bulgarians seem, in fact, to have been badly crushed, and the Romans wasted the greater part of their territory (Stritter, 526, 527). In 766 Constantine advanced again to the borders of the Bulgarians, and determined to assail their stronghold, called Embolos (*i.e.*, the outlet) of the Beriganians. For this purpose he prepared a vast flotilla of 2,600 ships, and ordered them to rendezvous at Mesembria and Ankhialus. This fleet and the immense army which was its complement greatly terrified the Bulgarians, and they were prepared to treat for terms, when a terrible storm intervened, destroyed the fleet, and a vast number of his people; whereupon the Emperor returned to Constantinople (*id.* 527, 528). This was a great blow to the empire, and we read how in 768 the Slaves of Macedonia and Thessaly made a piratical raid on the islands of the Ægean, and it cost 2,500 robes to ransom

the inhabitants of Imbros, Samothrace, and Tenedos, whom they carried off (Jiresek, 142).

In 774 the Emperor Constantine the Fifth ventured upon another campaign against the Bulgarians. He sent his cavalry to occupy the passes and went to Varna with 2,000 transports. Theophanes tells us he proposed to go himself to the mouth of the Danube against the Russian boats, which he calls "Khelandia." These Russians were no doubt Scandinavians and were apparently allied with the Bulgarians. It is the first time they are mentioned in history. The Emperor when he reached Varna became frightened, and was for returning. On the other hand, the Bulgarians, frightened at his arrival, sent Boilas and Tzigatus (Anastasius says, Boilan Tzigates (?), *i.e.*, the Boila Tzigates) to treat for peace. A treaty was accordingly made, and its conditions written down, and each ruler promised to respect the other's border. Thereupon the Emperor, who was by no means anxious for fighting, returned home again (Stritter, 528, 529). A few months later, however, we read that the Bulgarians sent an army of 12,000 men, under their boilades, who made an attack upon Berzetia (Jiresek glosses this as Brsjaken land (?)) which was apparently an independent country, and to capture prisoners. The Emperor thereupon collected a large force, and in order not to seem as if he was breaking the peace, he professed it was directed against the Avars, who were then very troublesome.

He fell upon Bulgaria by way of Lithosoria (?) with 80,000 men, and won a potent victory, and returned with a large booty. This treacherous campaign was nevertheless dignified with the name of a noble war, since no Roman soldiers or towns suffered. It was clearly a victory won through the Byzantine virtue of craft over the too trusting Bulgarians, and the fact is so acknowledged by Theophanes and the more candid chroniclers. Knowing that his conduct had involved savage reprisals, the Emperor in 774-5 prepared a fresh fleet, which was again broken to pieces by the weather, near Mesembria. The Bulgarians now paid back the treacherous Emperor in his own coin. Teleric their ruler (he is so called by Zonaras, Theophanes calls him Tzerig, and Kedrenus Eleric) wrote the Emperor a letter, in which he professed that he wished to desert his own country, and go and live with him. In the meanwhile, for his own safety, he wished the Emperor to inform him of those among the Bulgarians who were his (Constantine's) friends and partizans, in order that he might confer with them. The Emperor ingenuously sent such list, and these friends of the empire were speedily put to death, much to the chagrin of Constantine (Stritter, 530, 351; Lebeau, xii, 302.

note 3). It was probably to avenge this wrong that, in 775, he set out on another Bulgarian campaign, but he died on the way (*id.* 531).

Constantine was succeeded by Leo the Khazar, in the first year of whose reign Teleric fled to Constantinople, where he was well received, married the cousin of Leo's wife Irene, and was given the title of a patrician. He was baptized, the Emperor himself acting as his sponsor, and was rewarded with rich presents (*id.* 531-2). In 789 the Bulgarians again assailed the empire. Philetus, Duke of Thrace, was surprised by them and perished with the greater part of his army (Lebeau, xii, 352).

In the spring of 791 the young Emperor Constantine the Sixth fought against the Bulgarians, who were led by their king Kardam, at Provat on the river St. George in Thrace, the modera Pravadi in the Balkans, between Shumla and Varna (*id.* 532, 533; Schafarik, ii, 173; Lebeau, xii, 357, note). After a slight skirmish both sides seem to have been panic stricken, and returned homewards. The following year he again went to Bulgaria, and built the town called the fortress of Markellians in the Balkans. Meanwhile Kardam with his people occupied the passes; and the Emperor was led away by his youthful ardour and the advice of his councillors, one of whom, Pancratius, who is described as an astronomer or astrologer, foretold that he would win a victory. He was, on the contrary, terribly defeated, and lost a great number of men, including several great dignitaries of state, among whom were Lakhanodracon, the best general and most wicked man in the Empire, and Pancratius himself, while the baggage and sumpter cattle, and the Imperial equippage fell a prey to the victors (*id.* 533; Lebeau, xii, 359.)

It would seem the Byzantine Empire, in addition to its other humiliations, had to pay tribute to the Bulgarians.

For fourteen years the annals are silent about Bulgaria, when we are told there came a minatory message from the aged Kardam threatening that, unless the Emperor would agree to pay him tribute, he would advance to the Golden Gate of Constantinople, and would overrun Thrace. The Emperor thereupon sent him some dung folded in a cloth, and said, "The tribute you demand I send you. As you are an old man I do not wish to fatigue you, I will come and meet you at the fortress of the Markellians; perhaps you will meet me there, and God shall judge between us." He thereupon collected a large force, and proceeded to attack Kardam and his Bulgarians in the forest of Abroleba, for seventeen days; after which the Bulgarians grew weary of the struggle and returned home again (Stritter, ii, 534; Lebeau, xii, 369). We do not read of the Bulgarians again till 807,

when Nicephorus proposed to march against them, but was detained at home in consequence of a conspiracy.

In the year 809 the Bulgarians waylaid the Imperial military chest near the river Strymon, and captured over 100,000 pounds of gold, and a large number of the soldiers with their commander were killed. A general muster then took place of the "taxati proceres" from the neighbouring districts, whereupon the Bulgarians withdrew (Stritter, ii, 535). The same year before Easter, Krum, the Bulgarian ruler, invaded the Roman borders, captured Sardica (*i.e.*, the modern Sophia) and killed 6,000 soldiers, besides many of the citizens. The Emperor Nicephorus would thereupon have marched against them, but his councillors were afraid, and began to disperse. On his speaking harshly to them, some deserted, including a famous Arab mechanician, named Enthymius, and he had to return without doing anything. Two years later Nicephorus again set out with his son Stauracius, and with a large army from Thrace and other parts, among whom were a large number of poor people armed with slings and poles, who were attracted by the hopes of pay. When this army reached the fort of the Markellians Krum grew frightened and sued for peace, but the Emperor, who is described as a second Ahab by the chronicler Theophanes, insisted upon trying his fortune in the dangerous country of Bulgaria. Before he entered it, however, he was deserted by one of his favourite slaves who fled to the enemy, taking with him 100 pounds of gold and the Imperial robes, a desertion which was deemed of sinister omen; we are told the Emperor constantly repeated to himself "I know not whether I am compelled by God or the Devil, but an irresistible force seems to urge me on." At first the Imperialists were successful, and behaved with great cruelty; the Emperor ordered even the children to be slaughtered, and busied himself only with looking after the plunder. Krum's palace, which Zonaras says was called his aula by the Bulgarians, was burnt, and the Emperor put his seal upon his effects and punished several soldiers who committed rapine there by cutting off their hands and ears. Krum begged him to spare his people, and offered to accept any terms he should dictate; but this being refused, he assembled and harangued his men, and blocked up the exit and ingress to the place where the Imperialists were encamped with wooden fences like a wall. The Bulgarians worked so hard that in two days the Imperialists were caged in an iron grasp. When Nicephorus learnt what had been done he despaired of escape. After some days the Bulgarians made a night attack upon the camp and caused a terrible slaughter. Nicephorus himself and his chief men were killed and beheaded. Among the latter were Aetius, Peter,

Sisinius, Tryphyles, and Theodosius, all patricians. Salibaras, called the Prefect, also a patrician; Romanus the patrician, and Duke of the East, the Duke of Thrace, and many protospatharii, spatharii, commanders of the army, men of the bedchamber, provincial officers and a vast crowd of people, so that the noblest and greatest among the Christians perished on that day, besides a vast number of arms and treasure. The chronicler naturally adopts very lugubrious phrases in describing the disaster. He adds that Krum carried off the Imperial head as a trophy, hung it on a tree, and showed it in triumph to his various peoples, and then in the fashion so prevalent among the Turcoman races, when the flesh had decayed off it, he covered the skull with silver, and converted it into a drinking cup, to be used when he joined in the feasts with the zdravicas or boljars of the Slavini. Stauracius escaped badly wounded to Adrianople, and died six months later; others also found refuge in the forests and marshes (Stritter, *op. cit.* 536-541; Lebeau, xii, 446-449), but altogether the disaster was appalling, and gave rise to one of Gibbon's sonorous phrases, in which he says that the advantage of the death of Nicephorus overbalanced, in the public opinion, the destruction of a Roman army (*op. cit.* vi, 88).

The next year Krum overran Thrace and Macedonia. He captured Debeltos, not far from the Black Sea, and carried off its citizens and bishop. The chronicler says he transported them into "another country," by which expression Schafarik understands Hungary, but which doubtless means Wallachia. Meanwhile the Emperor Michael, who had marched against him, had to try and conciliate his own rebellious soldiers with presents and otherwise, and the invaders had it their own way accordingly. Ankhialus and Berrhæa were deserted, as were Nicæa, Philippopolis, Probatir (*i.e.*, Pravati), Philippi, and Amphipolis, then called Strymon (Stritter, *op. cit.* 542, 543).

Krum, who was master of a portion of Thrace and Macedonia, now made overtures through his envoy Dragomir (Dargameros) to renew the pact formerly made between Theodosius and the Bulgarians in the year 716, with the additional conditions that the Greek merchants should in entering Bulgaria make a declaration of the goods they had with them for customs purposes, and in default have them confiscated, and that the Emperor should undertake to restore not only Bulgarian fugitives, but also such Roman prisoners as had succeeded in breaking their bonds and escaping (Stritter, *op. cit.* 543). In case his terms were refused, he threatened to attack Mesembria, the modern Misivria, on the Gulf of Burghas, which he proceeded to beleaguer. His siege artillery was superintended by an Arab skilled in such machines, who had been baptised

under the name of Euthymius, and had been stationed at Adrianople; but not getting the rewards he expected from the Greeks, and having, in fact, suffered punishment at their hands, he deserted to the Bulgarians, as I have mentioned, and taught them the secrets of his craft. They were not long in capturing the city, and secured much booty of gold and silver there, including 36 brazen tubes to shoot Greek fire through, with a quantity of that terrible ammunition (*id.* 544–548). Michael was now anxious to make peace, and sent for the chief ecclesiastical dignitaries to consult with him.

The question of surrendering the refugees was the chief difficulty. The Bulgarian laws were very severe, and many to escape them had fled to Constantinople and been baptized, and had attracted a number of others in their wake, so that the Bulgarian king began to fear that his kingdom might be depopulated. On the other hand, the Bulgarians held in captivity even a larger number of Greek prisoners. This weighed with the Emperor and others who, with Hobson's choice before them of giving up certain Bulgarians to condign punishment or of leaving a number of Greeks to suffer death, chose, we read, like people in a shipwreck, to side with those dearest to them, a conclusion which would also secure peace. Two of the principal church dignitaries raised their voice against this course. They declared it would be infamous to surrender refugees who had trusted themselves with them, and who in becoming Christians had in fact ceased to be refugees. Constantinople had become not merely their home but their sanctuary, and as to their own compatriots they ought to release them with the sword and not at the expense of their victims (Stritter, 544, 545; Lebeau, xii, 465, 466). Meanwhile Krum, having captured Mesembria, proceeded to lay waste Thrace. His course was only stayed by the outbreak of a terrible epidemic, which destroyed two-thirds of his army, and compelled him to retire. The Emperor determined to take advantage of his weakness. He collected his forces, chiefly Cappadocians and Armenians, who were, however, scandalized by the interference in military affairs of the Empress Procopia. It was decided that the army should not move beyond the Roman frontier, and soon its exactions upon the citizens was found to be even more harassing than a hostile invasion. In June Krum crossed the frontier and advanced to Bersinikia. Some small skirmishes took place in which the Greeks generally won. Meanwhile the extreme heat severely taxed the Bulgarians, and the Emperor was for trusting to the weather rather than his arms. His prudence aroused murmurs among his men, incited by Leo the Armenian, who had his own game to play, and a battle was determined upon. In this struggle the Imperialists seem at

first to have been successful, but according to the chroniclers the tide of victory was turned by the defection of Leo, who withdrew with his men at a critical moment, when a panic ensued. At first the Bulgarians, thinking the retreat a ruse, refused to follow, but presently, seeing the Greeks scattered, they fell upon them furiously, and having slaughtered a great number secured a crowd of prisoners and a great quantity of trophies.

Michael retired to Constantinople, and soon after resigned the throne to Leo who was raised to it by the soldiery (Stritter, 548-553). Krum, leaving his brother to attack Adrianople, advanced himself towards Constantinople and made a perambulation about the city from Blakhernas to the Golden Gate. In a meadow outside, we are told, he went through some demoniacal sorceries and sacrificed men and cattle (Simeon Logotheta et auct. incertus Stritter, 554). One author mentions especially dogs as being sacrificed. Krum then went down to the seashore where he dipped his feet in the water and washed them, and then sprinkled the army and made his progress to his tent between two rows of his concubines, who meanwhile sang songs in his praise. The strength of the walls and of the defending army soon showed him that it would not be feasible to take the city. He accordingly was ready to listen to terms, and was apparently willing to withdraw if secured the payment of an annual subsidy, and a present of rich garments and a number of maidens. He also demanded permission to thrust his spear into the Golden Gate of the city. Leo suggested a conference, and that Krum, attended by some of his people unarmed, should again repair to the strand while he (Leo) would, in company with some of his people, draw near in a ship, and they could arrange terms at a colloquy. Meanwhile the faithless Emperor ordered three of his men to plant themselves in ambush, and having given them the watchword ordered them on a given signal to fire their arrows on the unsuspecting Bulgarian chief. The latter duly set out to keep his appointment, accompanied by three companions, namely, Constantine called Patzes, who had some time before fled to the Bulgarians, and married Krum's sister, Constantine's son, and his Logotheta or finance minister. The Bulgarian king dismounted, whereupon the signal was duly given, the three men in ambush sprang out. Krum got on his horse, and although wounded fled and reached his people in safety. His companions, however, were captured, and the Logotheta was put to death (*id.* 554-556).

Naturally enraged at this act of wanton treachery, Krum proceeded to wreak his vengeance with no light hand. He wasted the district with fire and sword, burnt the beautiful

churches outside the city gate, which had been built by Irene, Nicephorus, and Michael, with the monasteries and palaces. Then passing on to the suburb of Saint Thomas, he destroyed the palaces and sacred structures there, burning the buildings and breaking the columns, and destroyed the circus with its marble statues, its brazen lion, &c., killing all whom he met, even the cattle. Thence his people made their way to the strand and set fire to all the fleet, and captured a vast booty, and burnt a large portion of the town inside the Golden Gate as far as the Rigias, which falls into the Propontis west of Selymbria. They overthrew the famous bridge at the river Athyras, now called the Karasu, and wasted the town, ravaged Selymbria (now called Selivria), Daonis, and the environs of Heraclea. They laid waste Rhædestas, now Rodosto, on the Sea of Marmora, plundered the outskirts of Panios, and then entered the Ganian mountains. From this district they carried off a great number of prisoners, and collected a vast troop of cattle, women, and boys, whom they sent off into Bulgaria. They then advanced into the Chersonese to Hexamilios, Abydos, and Ebros, and overthrew all the towns great and small from there to Adrianople (*id.* 556, 557). They then beleagured Adrianople itself, whose citizens, pressed by famine, consented to surrender the town. The ravage must have been terrible. Krum was at length avenged, and withdrew with a great body of captives, who were transported to "Bulgaria beyond the Danube," a phrase which has been interpreted by Schafarik as meaning Hungary as far as Pesth, Erlau, Marmarosh, &c., and the Theiss (*op. cit.* ii, 174 and 201, 202), but I believe the phrase means merely Wallachia, which was a part of the Bulgarian kingdom, and I am strongly inclined to believe that the Vlakhs of this district and of Transylvania are largely, though not altogether, the descendants of the Macedonians transported by Krum and his successor.

Among those transported were all the citizens of Adrianople, including Manuel the bishop, also the parents of Basil, who was afterwards Emperor, and Basil himself then a boy. These emigrants, we are told, were closely attached to the Christian faith and converted many of the Bulgarians, among whom there were at this time no Christians (*id.* 557, 558, note). Elated by his former victory Krum, it would seem, repeated his attack the next year and proceeded as before to harry the inhabitants and cattle; thereupon the Emperor Leo once more sent hostages to treat for peace. This being scornfully rejected, he marched with his troops towards Mesembria and intrenched himself near there. The Bulgarians were not long in coming, but meanwhile he secreted his people on a mountain, afterwards called Leo's Hill, whence after nightfall he fell on the unsuspecting invaders,

who were panic stricken, many of them were killed, while Krum himself escaped with difficulty. The Emperor then to have made a raid into Bulgaria, where he made many seems captives. The men were slaughtered, the women carried off as slaves, while the children in arms were barbarously broken against the stones, and Leo returned home in triumph (*id.* 558–560).

This was a fortunate issue for the Greeks, who were no doubt in a very serious difficulty, and we are not surprised to find that this very year, *i.e.*, in 814, envoys went to Louis, the Emperor of the Franks, to solicit his aid against the Bulgarians and other barbarians (Ann. Lauriss, Pertz, i, 122). Apparently during the succeeding winter, which was a very mild one, Krum at the head of 30,000 men, who are said to have been encased in iron, advanced as far as Arcadiopolis, which they captured, and then made a regular "baranta" after the fashion of the Turkomans, driving off 50,000 people captive, who were doubtless transported across the Danube, and sent to join their relatives in Wallachia and Transylvania. These captives were transported with all their property, including their cattle-yokes, their domestic furniture, clothes, tools, and herds of oxen and sheep. It was, in fact, the transportation of a whole people for the purpose of colonization. The Roumans of our day are in every probability the descendants of the Thracian peasants carried off by the Bulgarians, a transportation which began in the sixth century, but was largely the work of Krum.

Krum made still another campaign against the empire. We are told that he collected a vast army of Avars, and of different kinds of Slavini, with an elaborate siege apparatus, 5,000 carts and 10,000 sumpter beasts, and marched towards the Imperial city. Leo having heard of these preparations, ordered a levy and enlarged the defences of his capital, causing a new ditch and rampart to be made on the side of Blakhernas. The impending struggle, however, was averted by the death of Krum, which occurred on the 13th of April, and was accompanied by bleeding at the mouth, ears, and nose. It was reported that some mariners coasting along the Bulgarian shore heard a voice from heaven announcing his death, which was no doubt most grateful news to the Greeks. Schafarik and Jiresek date the event in the year 811—I know not on what authority, and in fact this date is hardly compatible with the events that are reported as having occurred between the time of his great defeat and his death, and it would seem that he did not die at least before the year 816.

Krum was a most important figure in Bulgarian history, and his prowess was felt not only in the south but also in the north

of his kingdom. The victories of Charlemagne had broken the power of the Avars and made it easy for Krum to extend his attacks in the direction of Pannonia, and he overthrew the power of the Avars to its very foundation. The Bulgarians, we are told, were much pleased with the dress of the Avars, which they adopted in lieu of their own. Krum questioned his Avar prisoners as to why their sovereign and they had been so grievously overthrown. They replied that false witness and mutual slanders had been the cause of their misfortunes as they had of other powerful States. The wise and prudent had been displaced from the government by the intrigues of the powerful; injustice and venality had affected the administration of justice, drunkenness had prevailed greatly among them, while others had been corrupted by bribes, and that all of them had become merchants and had taken to cheating one another. Thence, they said, their overthrow. Accordingly Krum called together the Bulgars, and created new laws for them, punishing with death those who should accuse others falsely. He forbade the use of intoxicating drinks, and ordered the vines to be torn up by the roots. Avarice was condemned, and hospitality and generosity inculcated, &c. (*id.* 562, 563). The extent to which the Bulgarians dominated at this time in Pannonia has been much exaggerated. It would seem from the few facts we possess that the power of the Avars had now been thoroughly crushed, and that their old country was now divided between the Franks and the Bulgarians, who were conterminous with one another. Schafarik, Dummler, and others, make the Theiss the western boundary of the Bulgarian kingdom, and include in it all the country to the east of that river; but from the negotiations that took place shortly after this with the Franks about a definite boundary it is not probable that the limit was of such a definite nature as the river Theiss. It seems, on the contrary, to me, that there intervened between the Bulgarian and Frankish borders a piece of more or less independent territory still subject to Avar princes, who were dependent on the Franks.

Eginhardt tells us that in 818, while the Frank Emperor was staying at Heristal, envoys went to him from the Obodriti as well as from Bornas, the ruler of the Goduscani and Timociani, who had lately separated from the Bulgarians and placed themselves under the authority of the Franks (Eginhardt Annales, Pertz, i, 205).

These Slavic tribes, as I showed in the former paper, occupied the lower Theiss, the Timok, and the Lower Morava, and it is more than probable that the Bulgarian frontier was now actually pushed to the latter river while the Serbs beyond were doubtless also dependent on the great Krum.

According to one tradition, Krum was succeeded by a chief named Tsokos; another authority makes him be succeeded by Dukum, which may be a form of the same name, and he again by Diceng or Ditzeng (Lebeau, xiii, 10, note, and the prologue and menologium of the Emperor Basil cited by Jiresek, *op. cit.* 146).

Tsokos is said to have put to death Manuel, Archbishop of Adrianople, with some companions whom he first tried to make apostasize. According to Golubinski three other bishops and 374 persons were thus put to death (Jiresek, 140). Kedrenus tells us distinctly that Krum was succeeded by Krytegon, who was much more cruel than himself, and he assigns to him the execution of the Bishop Manuel (Stritter, 563).

We now meet with another Bulgarian king, called Ombritag by Theophylactus, Mortagon by Kedrenus, and the continuator of Constantine, and Omortag by the Frank annalists, and in an inscription to which I shall presently refer. The tremendous victory won by the Emperor apparently exhausted the Bulgarians very materially, and we are told that Omortag, not being able to contend successfully against the empire, determined to send home the other prisoners, among whom were Basil and his parents (*id.*). Roesler would argue that all the people transported by Krum returned again on this occasion, but this is quite incredible, as we have seen the latter transported, a whole nation with all its impedimenta, while the returned prisoners were doubtless some of the grandees who had special ties with the empire.

Omortag at this time made a pact with the Emperor Leo by which he agreed to a thirty years truce, a truce which really lasted for thirty years. Leo swore by the Bulgarian gods, while Omortag swore by the God of the Christians. On the accession of Michael, and the rebellion of his general, Thomas, who laid siege to Constantinople, Omortag wrote to the Emperor offering him his assistance. This the latter refused. Nevertheless, the Bulgarian king, who was probably anxious for some booty, and pleaded the obligations he was under by virtue of the recent treaty, prepared an army, entered the Roman borders, and pitched his camp at Kedoctus, probably the Aqueduct near Heraclea. There he fought a savage battle with Thomas, whom he defeated, and returned home laden with captives and booty; this was in the year 822 (Stritter, 564–6).

Two years later we find Omortag sending envoys to the Frank Emperor, who sent back one called Machelin with them as his representative. About the same time envoys also went from the Obodriti Pradecenti, who lived east of the lower Theiss, to complain of the constant harrying they were subject to on the part of the Bulgarians. The following year fresh envoys went from

Omortag to settle the disputed frontier between the two empires. They were apparently detained in Bavaria for some time, and only admitted to an audience a few months later. This embassy was repeated again in 826, but it was apparently ineffective, for in 827 a Bulgarian fleet went up the Drave, and devastated the country of the Pannonian Slaves, then dependent on the empire, with fire and sword. The Frank officials were driven out and replaced by Bulgarian governors (Eginhardt Annales, Pertz, i, 212–216). In 828 the Bulgarians devastated Upper Pannonia, and as Baldric, Duke of Friauli, had proved himself unfit to cope with the invaders, he was deprived of his province, which was divided into four counties (*id.* 217).

Enhardus, the Fuldensian annalist, tells us further that Louis the Younger was in 828 sent against the Bulgarians. In 829 the latter again sent a fleet along the Drave and burnt several towns within the Imperial borders (Pertz, *id.* i, 359, 360).

The Frank annalists do not give the details of the Bulgarian encroachment upon Pannonia as we would wish, but from a number of facts Schafarik and others have concluded that Syrmia lying between the Save and the Drave, Eastern Hungary from Pesth and the Matra mountains to the sources of the Theiss, together with the district between the Serbian Morava and the Timok, remained subject to the Bulgarians until the irruption of the Magyars (*op. cit.* ii, 176). This I hold with Hunfalvy to be quite improbable. The Bulgarian attacks on Pannonia were mere raids, and I have little doubt that their permanent possessions north of the Danube were limited to Wallachia. I shall have more to say about this in the next paper of this series.

We do not know when Omortag died. In 1858 Mr. C. Daskalof found in the Lavra of the 40 martyrs at Tirnova, which has been altered into a mosque, a rude inscription in Greek letters on a red marble pillar which looks very ancient, and as if it had been in the water a long time. This inscription records the building of three houses or palaces by Omortag near the Danube. There is no date or religious symbol on the pillar, which Jiresek supposes was once placed on a grave mound on the Danube, doubtless the burial place of the chieftain (*op. cit.* 148, 149). The inscription is otherwise interesting as it gives us the correct form of his name.

At this point we reach a very confused period in Bulgarian history,—Jiresek has passed it by without comment and Schafarik throws little light on it. The fact is that we are limited to a passage of George the Monk, which was copied by Leo the Grammarian, and which is singularly inconsequent and contradictory. He tells us that during the reign of the Emperor

Theophilus (*i.e.*, 829–842), the commander of the army in Macedonia was called Cordyles. He, it seems, had been one of the Macedonians transported by Krum, and when he found his way home again had left his son in command of the Macedonians north of the Danube, *i.e.*, of the Vlakhs. He now proposed to the Emperor that he should send a fleet which might transport these exiles home again.

About this time Leo the Grammarian says that Baldimer, *i.e.* Vladimir, the grandson of Krum and father of Simeon, was the ruler of Bulgaria. The father of Simeon was the Tzar Boris or Bogoris who was therefore the same person as the Baldimer of this account. Boris is said by Constantine Porphyrogenitus to have been the son of Presia, and the probability is that Presia was in fact the successor of Krum. Of him we only know that, according to Constantine, he fought for three years against Vlastimir, or Vladimir, the ruler of the Serbians, without any result (Stritter, ii, 154). Let us now turn to the statement of George the Monk. He tells us that when Cordyles made the proposition above named, Baldimer (or Boris) was absent at Thessalonica, and the captives took advantage of the opportunity to set out with their goods. Baldimer now returned, crossed the Danube and attacked them. Driven to despair they put Tzantzes and Cordyles at their head, resisted and killed some of the Bulgarians and captured others. Unable to recross the river they appealed to the Hungarians, here called Ouggroi, and who are now mentioned definitely for the first time. Meanwhile the Imperial flotilla arrived. At this juncture the Macedonians noticed a vast body of Hungarians coming towards them and threatening them. They offered to allow them to embark if they would abandon their property to them. As they refused to do this, a struggle ensued, and the Hungarians were put to flight. They then embarked and arrived safely in Macedonia (Stritter, ii, 566, 567; Lebeau, xiii, 183, 184). Here, again, we have a mere handful of people. It is incredible that any flotilla at the command of the Greek Emperor should have transported more than a mere fraction of the crowds who were carried away by Krum. There is one word in the statement of Leo which has caused some difficulty. He refers to the Bulgarian king in one passage as Komes. Now it is curious that in the inscription of Mortagon already referred to he is styled Giom Mortagon. Can this be the Bulgarian form of the title Khan?

In 843, when the throne of Byzantium was occupied by the Emperor Michael the Third, under the tutelage of his mother Theodora, we find Boris threatening to invade the empire; but on receiving a martial reply from the empress he agreed to renew the pact which his predecessors had made. Theodora now

sent to redeem a monk called Theodore who was surnamed Kuphar, and who had been made captive, while Boris similarly sent to ask for the return of his sister who had been captured by the Greeks long before, and was then living in the palace. She, it seems, had become more or less a Christian, and now sought to influence her brother, who had heard something of the faith from the monk Theodore (Stritter, ii, 568, 569). This religious proselytism was not altogether an effective peacemaker, for we read of the Bulgarians making a raid upon Macedonia in 852 in which they suffered severely (*id.* 569, 570). But this was a solitary break in a really long truce. The next year Boris was at issue with the Franks. He had sent embassies to Louis the German in 845 and 852, probably to complain about an invasion of his borders. These were followed in 853 by a hostile movement, in which his people, who were in alliance with the Slavic subjects of Rastislaf, then the ruler of Moravia and Slovakia, were defeated (Ruodolphus Fuldensis Pertz, i, 364-367; and Prud. Trec. *id.* 448).

Boris had another war on his hands against the Serbians, in which he tried to revenge his father's defeat by Vlastimir, and attacked the latter's sons Muntimir, Stroemir, and Goinik, but he was defeated, and his own son Vlastimir or Vladimir was captured, together with twelve war engines.

This disaster induced him to come to terms. He was then in the Serbian land, and as he feared some ambush on his way home, he was escorted as far as Rasa, *i.e.*, Novi-Bazar, which was on his frontier, by Borena and Stephen, the sons of Muntimir, who were rewarded by rich presents, and in turn gave him two maidens, two falcons, two dogs, and 90 skins, as was the fashion of making peace among the Bulgarians. Presently civil strife arose between the three Serbian Princes, and Muntimir, having won the day, sent his two brothers captive into Bulgaria, retaining as hostage Peter, the son of Goinik, who soon after escaped to Croatia (Stritter, ii, 155 and 575, 576). Stroimir married a Bulgarian wife. During the reign of Muntimir in Serbia, many of his people were converted by missionaries sent by the Emperor Basil, and we are told that both the Serbs and Croats now acknowledged their dependance on the empire (Stritter, ii, 92).

Constantine Porphyrogenitus mentions that Boris had a struggle with the Croats, in which he was not very successful, and agreed to a peace (Stritter, ii, 600).

We now reach a notable event in Bulgarian history, namely, the conversion of its king to Christianity. This took place, according to Schafarik, who has examined the chronology of these events with some pains, in the year 861 (*op. cit.* 181, note 2).

From the Byzantine writers we learn that Bulgaria, being afflicted by famine and pestilence, the Emperor Michael marched against it, whereupon Boris, probably for political reasons, determined to become a Christian. Peace was accordingly arranged with the Emperor on the terms that Boris was baptized and received the name of Michael, no doubt after the Emperor, while the Greeks made over to him what their annalist describes as the sterile district, from the pass of Sidera (*i.e.*, Demirkapu or Vratnik near Sliven), as far as the coast town of Debeltus, called Zagora, in Slavic, and which was situated near Burghas (Jiresek, *op. cit.* 153, 154).

A curious Saga which has been dissected by Golubinski makes out that Boris was converted by a painter named Methodios, who painted a picture of the Last Judgment so realistically, that the King was frightened and was led to change his faith, but the mistake has really arisen, as this author has shown, from a confusion of a painter named Methodios with Methodios the Apostle of the Slaves (*id.* 154).

The latter was not improbably the chief instrument in spreading Christianity in Bulgaria at this time, and Schafarik argues from the Moravian legends of Cyrillos and Methodios, the life of the Bulgarian Clement, and the testimony of Diokleatos, that he in fact preached the Gospel in Bulgaria before he went to Moravia in 862 or 863 (*op. cit.* ii, 181, note 2), thus confirming the statement of the Byzantine author. The pact between Boris and Rastislaf of Moravia did not last long, for in 863, while we find the latter assisting Carloman, the son of Louis the German, who was the Governor of Carinthia, in a rebellion against his father, we are at the same time told that Louis was assisted by the Bulgarians (Ruod. Fuld. Pertz, i, 374). Carloman having submitted, Louis and Boris went against Rastislaf, with whom they made a treaty of peace at Tulln, on the Danube, which held good during the rest of the century (Jiresek, 151). The Franks and Bulgarians, however, had a quarrel of their own, and Hincmar tells us Louis marched against the Bulgarian Khan who had promised to become a Christian (Pertz, i, 465). In 866 envoys went to Louis at Ratisbon from the Bulgarians, among whom, according to the Bertinian annals, was the son of the Bulgarian King, and reported that their Khakan had become a Christian, and asking that teachers might be sent (Annals of Fulda, i, 379). Another notice says that the King had been baptised the year before. Louis accordingly sent Ermanric Archbishop of Passau, with priests and deacons to spread the faith in Bulgaria; but when they arrived they found the ground already occupied by evangelists from Rome, who were baptizing and preaching everywhere. They therefore returned home again (*id.* 380).

The contradiction in dates, &c., between the Frankish and Byzantine authors at this time is, perhaps, due to the confusion that then reigned in the religious world in these parts. As Jiresek says, Bulgaria was looked upon by all creeds as an Eldorado where spoil could be secured, and Boris, who was probably a Christian from policy, swayed backwards and forwards in his loyalty to the creeds of Rome and Byzantium. He also had a struggle with his own bolyars, who did not wish to be converted. A rebellion in fact broke out, and 52 of the stiffnecked were killed, and a death blow given to heathenism. Among those anxious for converts in Bulgaria were Jews, who had large colonies at Thessalonica, in the Krimea, and among the Khazars. There were also Monophysites, and especially Paulicians, who were introduced into Thrace by Syrian and Armenian colonists from Syria. Peter Siculus, who went as a Byzantine envoy in 868 to the Armenian Tefrica, was told by the Paulicians there that they had the intention of sending some of their number to try and reconvert the newly converted Bulgars from the Greek faith to their own. Peter dedicated a work he wrote against the Manicheans, which is still extant, to Joseph, the first Archbishop of Bulgaria. Meanwhile strange positions were occupied by the orthodox ; one body of Bulgarians set up as their leader a layman who had baptised them. Some of the Greek Popes or Priests forbade bathing on Wednesdays and Fridays, others the eating of flesh of animals which had been killed by eunuchs, &c. (Jiresek, 155, 156). But the great feud was between the Latin and Greek creeds. Boris was apparently afraid that Greek bishops in Bulgaria might be the precursors of Greek domination there, and we accordingly find him, in 866, appealing to the Pope, and as we have seen, to the Frank Emperor, for missionaries. His envoys to the Pope took a document embodying 106 requests, some of which were naive enough, for instance, whether in future they would be permitted to wear trowsers (*femoralia*). They also especially pressed for the appointment of a patriarch of their own, an embarrassing request which the Pope cleverly evaded by saying he first proposed to send some Bishops to make inquires (Jiresek, 156). Pope Nicholas accordingly sent the Bishops Paul and Formosus, with a company of priests. Whereupon the Popes of the Greek rite were driven out (Jiresek, *op. cit.* 156), but a difference shortly after arose. Nicholas having died, his successor Hadrian II claimed the right to appoint the Bulgarian Archbishop. The latter nominated Sylvester to the post, while Boris claimed it either for Formosus, or for the deacon Marinus. Meanwhile a revolution took place at Constantinople, by which Basil, who was a Slave by birth, and as we have seen had been a prisoner

among the Bulgarians, mounted the throne. In conjunction with the Patriarch Photius, he began a struggle with Rome which speedily developed into the Great Schism, as it is called. A Council was summoned at Constantinople, to which Boris who was at issue with the Pope, sent as his representatives Peter, Zerbulas, Zundikas and Twentarus (Schafarik, ii, 183).

This Council, which is referred to sometimes as the 8th General Council, was attended by Legates from the Pope. It met in the year 869; one of its most important acts was the deposition of Photius, and it widened the breach with Rome. An important subject of debate was the question as to which patriarch the Bulgarian Church was subject to. Before the invasion of the Bulgars, their country had formed a part of the Eastern Empire, but in ecclesiastical affairs had been ruled by the Archbishop of Thessalonica, who was the deputy of the Bishop of Rome. The Greeks argued that Bulgaria ought to follow the fortunes of the Empire, and that Rome in submitting to the Frank Kings could not carry over the allegiance of the Bulgarians. The Council eventually decided in favour of the supremacy of Constantinople, and the Papal Legates returned homewards much chagrined; they were waylaid and plundered *en route* by the Slave pirates of the Adriatic. The bishop sent to Bulgaria by the Pope also returned home again. The result of the Council was in fact to definitely attach Bulgaria to the Eastern Church (Lebeau, xiii, 267, &c.).

The Archbishop Theophylactus was sent with a following of priests into Bulgaria, several sees were founded, while a number of bishops apparently had no dioceses, and are referred to as "Episcopi regionarii." The Archbishop of Bulgaria was treated with special honour at Byzantium, and assigned the seat next the patriarch. And Boris' son Simeon was sent to the Imperial capital, where, according to Liutprand, he studied the works of Demosthenes and Aristotle, and acquired the soubriquet of "the Semi-Greek," and the Pope wrote and wrought in vain to try and bring back Boris and his people to their old allegiance to himself (Schafarik, *op. cit.* ii, 183, 184; Jiresek, 157, 158).

In 871 the famous Sviatopolk mounted the throne of Moravia. He laid a heavy hand on all his neighbours, and in 882 we find him fighting with a united body of Franks and Bulgarians. The result of his several wars was to make him master of Western Pannonia and to make his borders conterminous with those of Bulgaria (Schafarik, *op. cit.* ii, 405; Jiresek, 159). It was under his patronage that Methodios the Slave evangelist worked. The latter died in April 885. On his death his various scholars were dispersed and many of them sought shelter in Bulgaria where they were gladly welcomed by Boris, and renewed their good

work at his court. Among these fugitives there was named Gorazd, Klemens, Laurentios, Naum, Sava, Angelar, &c. (Jiresek, 160). We now meet with another contradiction between the eastern and western writers. One account says that Boris retired to a cloister and handed over the government to his son Vladimir, who reigned for four years, when his ill-doing caused his father to come out again from his retirement. He thereupon deposed Vladimir, had him beheaded, and gave the government to his younger son Simeon. This is reported in the legend of St. Clement, and in some epitomes written in Cyrillian characters (Schafarik, ii, 185, note 2). Sigebert also mentions this, and suggests that the young prince wished to reintroduce paganism (Pertz. vi, 241). The Byzantine authors know nothing of Vladimir, and they mention Simeon as ruling in 888; on the other hand, the Fulda annals distinctly refer to an embassy sent to Vladimir by Arnulf to renew the alliance against Sviatopolk and to prevent the Moravians from obtaining salt from Bulgaria. (Fulda annals sub an. 892; Jiresek, 160.) Having put Simeon on the throne, Boris once more returned to his cloister. He died on the 2nd of May, 907, and we must now turn to the history of his famous son the great Tzar Simeon, whose reign is the golden period of Bulgarian history. With his accession the peace between Byzantium and Bulgaria which had lasted so long came to an end. The cause of this strife was that a eunuch named Musicus, in the service of one of the principal officials named Zautzas, who had united with two Greeks named Stauracios and Cosmas, obtained the monopoly of exclusive trading with the Bulgarians, which traffic for their convenience was transferred from its ancient seat at Constantinople to Thessalonica. There, removed from supervision, they grievously oppressed the Bulgarian traders. Simeon having complained of this to the Emperor Leo the Wise, and obtained no redress, prepared for war (Stritter, ii, 576, 577; Lebeau, xiii, 340). The Roman armies were set in motion under Procopius, surnamed Crinites, but were speedily defeated in a battle which was fought in Macedonia. Their leaders were killed, while a number of Khazars, who had gone to the Emperor's help, having been captured, had their noses cut off, and were then contemptuously sent to Constantinople. The Emperor thereupon despatched the patrician Niketas Sclerus to the mouths of the Danube to arrange an alliance with the Turks, (*i.e.*, the Magyars, whom the Byzantines call Turks). He succeeded in arranging terms with Arpad and Kosan, or Kersan, the Magyar leaders (*id.* 578).

The Emperor now sent a fleet and the domestic legion to assail Bulgaria. This was in the third year of his reign (*i.e.*, in 888 and 889), and we are merely told that they penetrated as far

as Bulgaria. The expedition was apparently not very successful, and Leo sent an official to arrange about peace. Simeon imprisoned this envoy and prepared to resist. Meanwhile the Hungarian allies of the Greeks invaded Bulgaria and succeeded in retiring behind the Danube again with their booty. Simeon went to the rescue. He had fixed some chains to prevent the Greek vessels from drawing near and assisting, but these chains were broken and the Greeks passed through. The battle which followed was a fierce one. Simeon was badly defeated and many of his people were killed. This was near Silistria; the captives made by the Hungarians were redeemed by the Greeks, their allies, probably preferring to be paid for their services in gold rather than slaves. Simeon took refuge at Mundraga (?) while the enemy ravaged the land as far as Preslaf, when they again retired. At this time we are told the Turks (*i.e.*, the Magyars) were commanded by Liuntina, the son of Arpad (Stritter, ii, 578, 579). Roesler identifies this name as a corruption of Lewenta, which often occurs in later history. (Romanische Studien, 160, note 1). Simeon now made advances for peace to the Emperor, who thereupon withdrew his armies and fleet. Having secured this end, he followed the retiring Hungarians and inflicted defeat upon them (*id.* 580, 581). The Fulda annals which mention this, call the Hungarians Avars, and date the campaign in 895-6 (Pertz, i, 412). They forced easy terms upon the Emperor, in which the latter surrendered the captives he had made. Leo, as Lebeau says, in this war, gained the questionable glory of ransoming the Bulgarian prisoners from the Hungarians and handing them back again to Simeon without ransom (*op. cit.* xiii, 346). Nicephorus Phocas, the famous Imperial general, having died some time after, namely, in the year 891, Simeon siezed the opportunity and speedily found an excuse for war, on a charge that the Emperor had retained some of the prisoners, and he sent a demand for their restoration. He invaded Thrace and fought a bloody battle with the Greeks at Bulgarophygos, not far from Adrianople, in which the latter suffered a disastrous defeat (Stritter, 580, 581).

This terrible battle, in which the Greek army was practically annihilated, was fought in the year 892.

Having made peace with the Greeks, Simeon determined to crush the Hungarians, who, we are told, were at this time absent on a warlike expedition, meaning, doubtless, the attack they made on Sviatopulk, in conjunction with Arnulf in 892. Having made a league with the Pechenegs, they drove away the few Hungarians who had been left behind to guard their houses, and harried their wives and families. The Hungarians having returned and found their houses wasted, migrated into Pannonia.

After the battle of Bulgarophygos there was peace between the Bulgarians and the empire during the remaining years of the reign of Leo, who died in 911. During this peaceful interval Simeon performed the part of a patron of literature. It was a fertile epoch in its way. Bishop Constantine, Pope Gregory, John the Exarch, and the Monk Khrabr were busy, but the Slave historians complain that culture then meant Byzantine culture, and that we have no relics of poetry or other national literature at this epoch. From Bulgaria this Byzantine culture passed to Russia and Servia respectively (Jiresek, 164, 165). Bulgarian Christianity was at this time infected with various heresies, Arians and Manichees appear to have existed largely (*id.* 165). Simeon's capital was Great Preslaf, the Roman Marcianopolis, four hours' journey west of Sumen. There still remain its ruins about the village of Preslava, called Eski Stambul by the Turks, and now comprising but 200 Bulgarian and 100 Turkish houses. John the Exarch speaks in glowing terms of the Bulgarian capital and of its palace and churches, and contrasts the stone and diversely coloured wood of which its buildings were made, the pictures, the decorations in marble, copper, gold, and silver with the poor straw huts of his own country. He describes Simeon himself as sitting in his pearl-bedecked garments, with a chain made out of coins (*grivna cetava*) about his neck, with armlets on his arms, a purple girdle about his waist, and a golden sword by his side, and around him his bolyars decked with golden chains, girdles, and armlets (*id.* 165, 166). But the glory of Preslaf has long ago departed. Even when the Turkish geographer Haji Khalfa wrote, who died in 1658, there were only ruins to be described near Sumen, besides a great wall which is compared in its circuit with that of Constantinople (*id.*)

On the death of the Emperor Leo, Simeon sent envoys to his brother and successor, Alexander, to offer him his continued friendship. These envoys having been received with scant courtesy, Simeon prepared for war, when the death of Alexander postponed it. All this occurred in 912 (Stritter, *op. cit.* 582). Alexander was succeeded by his nephew Constantine Porphyrogenitus, then a boy of seven years old. Simeon, whose pride was doubtless galled by the treatment his envoys had received, continued his preparations. He marched with a large army to the gates of Constantinople, where frightened by the fortifications and the war machines upon them, and by the show of resistance, he withdrew to Hebdomos. Negotiations for peace were now commenced. The young Emperor's tutors having repaired to Blakhernas, where Simeon's sons were invited to sup with Constantine, the Greek patriarch Nicholas

was introduced to the Bulgarian King, put his stole over his head, and blessed him. Terms of peace were not, however, arranged, and the Bulgarians returned home without securing them (*id.* 583, 584). This year, Peter, the son of the Venetian Doge, Participatius the Seventh, on his return from Constantinople, where he had been well received, was arrested on the frontier of Croatia by Michel, Duke of Slavonia, who plundered him and handed him over to the Bulgarian King, from whom his father had to ransom him (Muratori Annal. v, 270, 271; Lebeau, xiii, 403). Constantine was a minor, and the Empire was governed by his mother Zoe. This was a good opportunity, and Simeon again marched southwards, invaded Thrace, and besieged Adrianople, which was surrendered to him by its governor, the Armenian Pancrutukas, who had been bribed. The city was recovered by Zoe from the Bulgarians, in the same manner (Stritter, *op. cit.* 584, 585). The Greeks now found a new ally. One John Bogas undertook to secure the alliance of the Pechenegs, who had recently driven out the Hungarians, if he was made a Patrician. He set out with a number of gifts and returned successful, taking with him hostages and a promise that the Pechenegs would cross the river when the empire was assailed by the Bulgarians (Stritter, *op. cit.* ii, 584). Having bought peace from the Saracens by the payment of a considerable tribute, the Empress removed the troops which were in the East to Europe, determined to crush the Bulgarians, and distributed *largess* freely among them. The army was officered by some of the most distinguished Greek officials, and before it set out it was assembled in a plain at the gates of the city, when the soldiers on their knees swore before the Archpriest of the palace, who held a portion of the true cross in his hands, that they would conquer or die. The army advanced into Bulgaria, and encountered the enemy at the river Achelous, near Mesembria. At first the Bulgarians were defeated, but in the pursuit one of the Greek generals having dismounted to quench his thirst, and his horse having escaped, his people who saw it riderless, were panic stricken. The Bulgarians turned upon them, and utterly defeated them with great slaughter. There seems to have been considerable jealousy among the Greek commanders. The Admiral Romanus Lacapenos had been ordered to the Danube to transport the Pechenegs across the river, but he refused to co-operate, and the Pechenegs returned home in disgust; there was a suspicion that he and Leon Phocas, the general of the land army, were striving as rivals for the Imperial throne itself (Stritter, *op. cit.* 586-588; Lebeau, xiii, 411, 412). Leon Ducas, with the débris of his army, now fell back on Constantinople, and was followed by the Bulgarians. Another

fight took place at Catasyrtes, in which the Greeks fought bravely, and the result of which was that Simeon retired with his people from before the capital (Stritter, ii, 589). These struggles took place in 917.

The result was altogether a very serious one for the empire, as we shall show presently. Simeon appropriated the greater part of Macedonia, leaving to the Greeks little more than the seaboard, while the latter had the misfortune to see the throne of Byzantium made the plaything of two rivals, Leon Phocas and Romanus Lakapenos. For a while Simeon turned his steps elsewhere. We have seen how Muntimir became the ruler of Serbia. He apparently died about 890, leaving three sons, Pribislaf, Bran, and Stephen. Pribislaf succeeded him, but was driven away in the course of a year by his cousin Peter, the son of Goinik, whom we have named above. It was while the campaign on the Akhilous was in progress that the Prefect of Dyrrakhium, Leo Rhabdukhus, went to Pagania to concert some measures with Peter, who was then the ruler of the Serbians. Probably this meant an alliance against the Bulgarians. Moved by envy, Michael, Prince of the Zachlumi (*i.e.*, Michael Wyschewit, who reigned from 912-926 in Zachlumia or Herzegovina) informed Simeon that the Roman Emperor had sent to arrange an alliance between Peter and the Hungarians, who were jointly to invade his borders. Furious at this news, Simeon sent an army under Theodore Sigritzes and Marmaeen, which seized Peter and carried him off. Michael put Paul, the son of Bran, on the throne of Serbia (Stritter, *op. cit.* 600, 601), and he doubtless became more or less a dependent of the Bulgarians.

In 921 we again find Simeon making a raid upon the Imperial borders, and the next year apparently the Bulgarians advanced under a leader named Khagan (*i.e*, the Khakan), by whom Simeon is probably meant, and another chief named Menik, and reached Manglaba. The Emperor sent a large army, together with a naval contingent under Alexis and Muzelaeus, against him. The Greeks encamped near the sea, and were surprised by the enemy, who suddenly appeared on the surrounding heights when they thought they were far away. The Imperial generals were panic stricken, and fled, and a terrible rout ensued, almost the whole army being either killed, drowned, or captured. The Bulgarians set fire to the Palace of the Fountains, a beautiful country house of the Emperors', and having pillaged the district up to the walls of the city, retired with a great booty (Stritter, *op. cit.* 590-2; Lebeau, xiii, 426, 427). The following June they again returned, and pillaged and destroyed the palace of Theodora the wife of Theophilus, outside the city walls. The Emperor now summoned his principal officers to a grand feast, when

under the influence of wine and excitement they promised great things. One of them, Sactices, who commanded the night guards, rashly set out with only his company at daybreak. He surprised the enemy's camp while the Bulgarians were scattered abroad pillaging, and killed the guards whom he found there; but the rest of them were speedily summoned, and slaughtered his band. He escaped, but was mortally wounded, and was buried in the church of St. Sepulchre. Simeon now again withdrew, but he had planned a more crushing campaign. He entered into an alliance with Fatlum, the Khalif of the Arabs of Kairvan (in Tunis) by which he undertook to attack Constantinople by land, while the Saracens assailed it by sea. The two were to divide the booty, and Simeon was to retain the city. The envoys of the Khalif were returning with those of Bulgaria to ratify the treaty, when they were seized in Calabria, and taken before the Emperor, who having imprisoned the Bulgarian envoys, released those of the Khalif, saying it was thus Romanus revenged himself on the enemies whom he esteemed. This superficial chivalry had the desired effect of conciliating the Khalif, and of causing him to renounce his alliance with the Bulgarians (Lebeau, *op. cit.* 430, 431; Jiresek, 168, 169).

Some time after—the year is uncertain, Jiresek dates it in 923, Lebeau in 925, and Stritter in 927—Simeon is found laying siege to Adrianople, where the patrician Leo commanded who had not failed to molest the Bulgarian borders. He bravely defended the town until famine pressed upon it, when the citizens surrendered it with their commander to the enemy. Simeon put him to death after subjecting him to torture, and having left a garrison there withdrew. This garrison fled on the approach of a Greek army which had marched to the rescue (Stritter, 593, 594; Lebeau, 432). The next year (924, 6, or 8) Simeon again marched through Thrace and Macedonia ravaging the country and destroying even the trees in his way. Having arrived before the gate of Blakhernas he demanded a conference to settle matters with the empire. Romanus sent the patriarch Nicholas and other grandees to the Bulgarian camp, but Simeon insisted on a *tête-a-tête* with the Emperor himself, whose equity and prudence he declared he knew well. Romanus was very anxious for peace. He had the imperial galley rowed into a shallow creek, and having enclosed a space round it with palisades, offered to meet his opponent there. The latter, or rather probably some of his wild subjects whom he doubless found it very difficult to control, set fire to a famous church dedicated to the Virgin. Meanwhile Romanus repaired to the Church of our Lady of Blakhernas where he gave himself up to prayer, and removing

a famous mantle which was reputed to have belonged to the Virgin, he put it on as a cuirass under his imperial robes and then repaired to the rendezvous. Thither Simeon also went, with an immense cavalcade, their arms glistening with gold and silver, and singing the praise of their ruler, the spectacle being watched by a great crowd on the walls of the capital itself. The Emperor awaited the arrival of Simeon, whose people inspected the vessel to prevent a surprise. Romanus is said to have spoken his friend a homily on the evils of blood-shedding, which is reported at some length by the chroniclers, and to have told him that if his motive was booty that he would willingly pay a considerable black mail to secure peace (Stritter, *op. cit.* ii, 595-598; Lebeau, xiii, 433-436). Peace was at length agreed upon, and Simeon received some lordly presents from the Emperor. As the terms were being settled two eagles are said to have approached one another in the air and then to have parted company, one going towards the city and the others towards Thrace. This was accepted as an omen that the peace would not be lasting. It, however, lasted longer than the augurs probably suspected. Simeon turned his arms elsewhere. I have described how Paul, the son of Bran, acquired the throne of Serbia as his protégé. To check-mate this the Emperor Romanus, who claimed suzerain rights over Serbia, and who had given an asylum to the son of Pribislaf named Zacharias, sent him to try and secure the throne, but he was captured and sent in chains to the Bulgarians (Stritter, *op. cit.* 601). Three years later Paul, having proved unfaithful to his Bulgarian patron, sent Zacharias, who drove Paul away and occupied the principality. Once on the throne he sided with his former protector the Emperor, and drew upon himself the vengeance of Simeon, who sent an army under Marmaes and Theodore Sigritzes. They were defeated, and their heads and weapons were sent as trophies to the Roman Emperor. This happened before the Romans and Bulgarians had made peace. To revenge the mishap Simeon collected a fresh armament and sent it under Cnenus, Hemnek, and Etzboklia. Zacharias now deemed it prudent to retire to Croatia, while the Bulgarians assembled the Zupans and ordered them to come together and do homage to Zeeslab, whom Simeon had appointed their ruler. They were then seized and carried off in chains to Bulgaria. The Bulgarians entered their land and laid it waste. They carried off all the inhabitants save those who found refuge in Croatia, and the country for several years was left vacant. Simeon now sent an army under Alogobotur against the Croatians, by whom, however, it was defeated, and apparently annihilated (*id.* 602). This blow seems to have been too much for the great Tzar, for he died on the 27th of May, 927. His death

was a most serious blow to the Southern Slaves. If he had lived, or if he had been succeeded by princes of the same martial character, it is very probable that a great Slave state reaching from the Adriatic to the Black Sea, which would have been a barrier to the Turks, might have been formed south of the Danube. As it was, the empire he virtually conquered broke to pieces and became disintegrated. The Tzar Simeon was the Alexander of Bulgarian history. We do not propose to carry the story further. We will now bring together such facts as we can collect about the separate sections of Bulgarian Slaves. As we have seen, the Bulgarians on entering Mœsia conquered the country as far as the frontier of the Avars, which Schafarik explains as the junction of the Save, Theiss, and Danube, and thence concludes, with reason, that among the Slavic tribes they conquered and incorporated were the so-called Eastern Obodriti, the Branitshani, Kuchani, Timociani, and probably also the Severani. Hincmar tells us that in 866 (probably it ought to be 861) on the occasion of Michael Boris becoming a Christian, ten gaus rebelled against him. These gaus Schafarik suggests occupied Bulgaria proper from the Timok to the sea. Of their names we can only recover two or three, which occur in the Frank annals, and which were situated in the north-west of Bulgaria, namely, the eastern section of the Obodriti, the Guduscani or Kuchani, and the Timociani. I have already described the Eastern Obodriti in a previous paper of this series, and would here only add that they are mentioned by the often quoted Bavarian geographer, who calls them Osterabtrezi, and who tells they possessed more than one hundred towns (Schafarik, ii, 208, note 3), proving what a powerful stock they were. Some of the towns in the district still preserve traces of their early names, as Bacs called Pagatzi by Kinnamos in 1163; Zemlin, at the junction of the Save and Danube called Zeugmin by Kinnamos, and Zeugnimon by Niketas Khoniatas, Sombor, etc. The Guduscani or Kuchani and the Timociani we have also considered in the former paper. The so-called Bulgarian Morava has for its feeding streams the Wrana, the Toplitza, the Taren, and the Tempeshka; the Serbian Morava is fed by the Ibar. The country between the Ibar and the eastern branch of the Morava, and the district watered by the whole river after the junction of the two head streams, the Serbian and Bulgarian Morava, which is now entirely occupied by Serbs, belonged until the ninth and tenth century to the Bulgarians, and only became Serbian in the twelfth century when the great Zupan Stephen Nemania conquered it and secured the important towns of Prishtina, Nish, &c. (Schafarik, ii, 212). The dialect is still somewhat sophisticated there. It is probable, says Schafarik, that the part

of this district bounded by the Timok, the Danube, and the Morava was secured by the Bulgarians on their conquest of Mœsia in 678, while the rest of the district between the Serbian and Bulgarian Morava, and beyond the Morava to the Drina, was only added to Bulgaria by Michael Boris. Dardania (*i.e.*, the district on the Binch Morava) belonged to Bulgaria in 869 (*op. cit.* 212). The whole district as far as the Drave was called Moravia, or rather, to distinguish it from Moravia in Northern Hungary, Lower Moravia. At the synod held at Constantinople in 878, an archbishop signed himself *Αγαθων Μωραβων*, together with two other Bulgarian bishops, Gabriel of Okhrida, and Simeon of Debeltus. He was probably the Agathon sent as an envoy to the Franks by the Emperor Basil in 873.

The Bavarian geographer, after describing Bohemia and Marharii (*i.e.*, the Northern Moravia), goes on to speak as follows: "Vulgarii regio est immensa et populus multus, habent civitates V., eo quod multitudo magna ex eis sit et non sit eis opus civitates habere. Est populus quem vocant Marehanos" (*i.e.*, no doubt the southern or Nether Moravia); "ipsi habent civitates xxx." Then follow the Osterabtorezi. In Serbian writings of the thirteenth and fourteenth century, Nether Moravia occurs frequently, as in the life of St. Simeon, written by St. Sawa in 1208, where it is called Pomoravya. In 1382 it is styled Moravye (Schafarik, ii, 214). At the sources of the Binch Morava is a town Morava, called Morowisdos by Kinnamos, in 1018, in the following passage cited by Stritter: "venerunt et legati Bulgarorum e Pelagonia (Polog) et Morobisto (now Morava) et Lipenio (now Liplyan) ad imperatorem et urbes ei dedunt" (Stritter, ii, 641). In 1342 we read of a "loco Moravo ab indigenis nuncupato," as far as which the Serbian King Dushan conducted his sister Helena (*id.* 861, Schafarik, ii, 215). Kedrenus, speaking of the Bulgarian, Peter Delan, in 1040, says, "Usque ad Morabum et Belegrados pervenit, qua sunt castella Pannoniæ ad Istrum" (Stritter, ii, 650.) St. Sawa founded a new bishopric in Moravia in 1224. This see was probably situated on the river Morawiza, where the monastery of Morawce, in the modern Rudnish, is still to be found.

Several distinct districts are mentioned in this southern Moravia, *inter alios* Nischawa (1153), called Nikawa by Kinnamos, connoting no doubt the country round Nisch, and Dendra mentioned also by Kinnamos in 1156, doubtless the Slavic Dubrava, which is mentioned as a gau in 1381 (Schafarik, ii, 215). Of the towns in the district the most important is Belgrade, the Singidunum of the ancients, where in 885, according to the life of St. Clement, lived the Bulgarian chief Boritakan (*id.*). Khram, a stronghold on the Danube,

mentioned in 1123 by Niketas Khoniata, now Ram. Rawanitza, mentioned in 1096, 1172, and 1189, and called Rabnel by Ausbert, Arnold, &c., and said to be situated "in Silva Bulgarica." Smolinyec, a place near Branitshevo, called Smeles in 1154, by Kinnamos. Zuetshan, called Sfentzanion by Anna Comnena in 1081, and Swetzanion and Sfeiamon by Khalcokondylas. It was on the borders of Bulgaria and Serbia. Liplyan, very probably the ancient Ulpiana, called Lipenion in 1018, by Kedrenos, Lipainion by Theophanes and Anna Comnena, and Liplyan by St. Sawa, under which name it still exists. Prishtina called Prisdiana in 1073, by Skylitzes and Theophylactus. It is curious that no name of any gau in Bulgaria proper is known.

The well known Dobruja or Dobritch, on the right bank of the Danube, at its outfall is first mentioned by Khalkokondylas, in 1444. It originated from its possessor Dobrici, who lived about 1388 (Schafarik, ii, 216), but we are told a place called Dobritsh, in the Bulgarian Moravia, is mentioned in the chronicle of Archbishop Daniel in 1330.

Of the Bulgarian rivers we find the Tytscha most frequently named in the chronicles. It is called the Tunza by Theophanes in 764, the Tumtza by Kedrenos, and the Tytscha in the MS. of the Monk Tudor at Dok. It is probably to be identified with the Ditzina, named by Constantine, in 949, the Bitzina of Anna Comnena. Under these various names it seems likely that the Dewna, which falls into the sea below Varna, is meant.

The most important Bulgarian towns were Preslaf called Presthlawa, Preshlawon, Persthlawa, Persthlawa, Parasthlawa, by the Byzantine writers; Pereyaslawiz, by Nestor and Praslaf in a deed of the Tzar Assan in 1186. It was the ancient Markianopolis, and is now in ruins. It was the capital of the Bulgarian kings until the subjection of Bulgaria in 971. Shumen, the Turkish Shumla, is identified by Schafarik with the so-called Aula Crumi, or Palace of Krum (mentioned in 802-815), and with the Buleuterion and Symeonis vertex of Anna Comnena. Provat, near Prislaf, is mentioned in 1186 by George Akropolit. Pleskof, called Pliskova, Pliskuva by the Byzantine authors, Leo the Deacon, Kedrenos, and Zonaras, in the year 971, was situated near Preslaf, but its site is not known. Varna, so well known to us, is mentioned as early as 678 by the Byzantine authors ("Warna urbs, Odesso vicina," says Theophanes.) Ditschin on the Danube is probably the Dinia or Dinogetia of Leo the Deacon. Kiyewez, also on the Danube, named by Nestor (967-971), is now unknown. Dristor, Derstor, Destor, called Drestwin by the Russian annalists, Darstero by Gundulit, and Dristra, in

889, by Leo the Grammarian, the ancient Dorostolas, is called Silistria by the Turks. Rakhowa (Bulgarian Rakhuawa, Reachuwa, Reachuwitza, Oryechowa, Oryekhowitza) is the name of two towns, one on the Danube, the other near Tirnovo, mentioned, in 1306, by Pachymeres. B'dyn, B'din, called Bydinum by Theophylactos in 1071, Bidini by Kedrenos, B'dyn in a deed of the Tzar Assan of the year 1186, and B'din by Archbishop Daniel, is the well known Widin, perhaps also the Widez, Widizof of the Russian annals. Lowez is mentioned in 1049 by the Byzantines under the name Lowitzon. Demnitzikos, mentioned as situated on the Danube in 1148, by Kinnamos, is not now known. Tirnof or Tirnovo, mentioned as early as 1185 by the Byzantine authors, was the capital of Bulgaria from the year 1180. Sredez, called Serdika by Theophanes in 809, Triaditza by Leo the Deacon and others in 987, Stralitzia by Ausbert and William of Tyre, is the modern Sophia called Sardika, and Serdika by the ancients. Boron, mentioned by Kedrenos in 1015, was probably on the Boyan near Sredez (Schafarik, ii, 217, 218).

Having examined the topography of the Bulgarian land, we will now conclude with a notice of the idiosyncracies of the Bulgarians, which are traceable to their partially non-Aryan descent.

Our story began with the conquest of the Slaves of Mœsia, who, like their brothers elsewhere, were a settled race of agriculturists, by the warlike and nomadic Bulgars, who were of Hunnic descent. The Slaves, apparently, have a singular facility for amalgamating with their neighbours, and swallowing them up. Thus we find the Bulgars speedily adopting the customs and the language of the conquered Slaves, and becoming Slaves, in fact, in all but two important particulars, one was their name. They retained their old denomination and continued to be styled Bl'gare, in the singular Bl'garin, by the Serbs Bugare, and by the Russians Bolgare. The other feature in which they remained somewhat apart from the other Slaves was in their physique. In a number of photographs of the upper strata of Bulgarian society, some time ago shown me by my good friend, Mr. Arthur Evans, of Ragusa, the Ugrian or Turanian type of feature was very marked. It was this class which probably was alone of Ugrian descent, the lower strata of the population remaining largely Slavic. The amalgamation of Ugrians and Slaves to form the present Bulgarian nation took place gradually. Many of the early chiefs bore names clearly of an Asiatic type, as Kubratus or Khrobatus, Batbaias, Kotragus, Alticeus, Alzeko, Kuber or Kuwer, Asparukh or Isperuk (perhaps a Persian name), Terbelis, Kormesius or Komersius, Teletzes, Sabinus, Paganus, or Bayanus

Umarus, Toktus, Tzericus, Kardamus, Krumus, Mortagon Presia, Boris, Almus (compare the Hungarian Bors and Almus), Ahmed, Talib, Mumin, Boilas Tzigatus, Marmaes, Kninus, Izboklia, Alogobotur, Konartikinus, Bulias Tarkanus, Kaluterkanus, Krakras, Elemagus, Kaukanus, Boritakan, Echatzis, Dobetas, Billa, Boksu, Heten, Organa, &c. (Schafarik, ii, 166, 167). Examine, again, the names of several districts occupied by the Bulgarians of the Danube, as Bular, Kutminziwi, Kotokium, &c. (*id.*), and some words in use among them, as Ropat, a prayer house (compare the Arabic Ribat or Robat) Boilades, nobles (compare the Avar Beled), Aul, the throne or seat of the prince (compare the Kirghiz aul, meaning the same thing, in Magyar ol=stabulum) welermit, silk, &c. (Schafarik, ii, 167). We will now collect such other Eastern characteristics as chroniclers have preserved.

The Bulgarians were essentially a warlike race. Their frontiers were protected by many fortified forts, and no one, whether a free man or a slave, dared to leave the country under penalty of a severe punishment, and if any one escaped, the frontier guards paid the penalty with their lives. According to the reports of the Arabs, their land was surrounded with a thorn hedge, with wooden gates. The several villages, however, were not so surrounded. As a standard they used a horse's tail, like the Turkish bunsuk, and the Mongol tugh or tuk. They only fought on lucky days. Before setting out a trusty officer was sent round to inspect the arms and horses, and where they were found defective, the owners were punished with death. Before their battles they performed certain incantations, &c. ("incantationes et ioca et carmina et nonnulla auguria").

Those who fled from battle, or were disobedient to orders, were cruelly punished. According to the report of the Arab Masudi, the Bulgarians used neither gold nor silver money, but cattle and sheep were their units of value in trading. In times of peace they were accustomed to sell Slave boys and girls as slaves at Constantinople. The ancient Bulgarian polity was founded on an aristocratic basis. The chief was styled Khan, and was assisted by a council of six nobles, who were styled Boilades or Boliades, whence some, says Jiresek, derived the Slav title of Bolyars or Bolerin (nobles). This title is used among the Russians and Bulgars, and has passed from them to the Rumans and Albanians. According to the court etiquette the Byzantine envoys first inquired after the health of the Khan, his wife, and children. Then after that of the Bulias Tarkhan, of the Konartikin, and of the six great Bolyars, then after the other nobles, and lastly after that of the whole people. Of the noble families we have recorded the names of four in the frag-

ment already quoted, namely, those of Yermi, Ugain, Ukil or Vokel, Dulo. Many of the nobles' names end in *bul*, whence the old Slave *bul* (boliar) is perhaps derived.

Mohammedanism, which had made considerable progress in Great Bulgaria on the Volga, had also planted itself in the Danubian Bulgaria. In a document of Pope Nicholas dated in 866, he speaks of Mohammedan books in use among the Bulgars ("libri profani, quos a Saracenis vos abstulisse ac apud vos habere perhibetis"). The Pope ordered them to be burnt. Mohammedans in Bulgaria are also mentioned in a Bulgarian Nomocanon of the thirteenth century, in which Mohammed is called Bochmit.

The Bulgarian language subsisted for a considerable period apart from the Slavic; thus in the life of Saint Demetrius, written in the eighth century, we read that the Bulgarian king sought among his councillors for men who could speak Greek and Slavic (Schafarik, *op. cit.* ii, 168; Jiresek, 134, 135), while among the writers of the eighth century Bulgarian and Slavic divisions of troops are clearly discriminated (Jiresek, 133–135.)

The rites performed before his battles by Krum have their counterparts in the later history of the Mongols. We are told how he "more gentis sacrificio instructo (profano et vere daemoniaco) homines ac pecora plura immolavit, tinctisque ad maris litus pedibus ac aqua lotus, lustratoque exercitu, faustis suorum vocibus omnibusque exceptus, per medium pellicum gregem iis venerationis ergo procumbentibus ac laudantibus processit" (Stritter, ii, 554).

The early Bulgarians were polygamists, at least some of them had two wives. As a dowry they gave their wives gold and silver, cattle and horses, &c. The princes possessed harems. In regard to their costume we learn that men and women both wore wide trousers, and women as among the Mohammedans veiled their faces. The men shaved the head smooth and wrapped it in a turban ("ligatura lintei, quam in capite gestatis") which was not removed during worship. According to Suidas the dress of the Bulgarians was like that of the Avars (*id.* 132). They ate flesh, but only of such animals as they deemed clean, and from which blood had flowed when they were killed. When any one was ill they had recourse to superstitious cures; ribbons were hung from his neck, or small stones were administered as medicine. The bodies of their chiefs, according to the report of the Arabs, were burnt or buried in tumuli, in which their wives and servants were also enclosed and suffocated. Their justice was of a very crude type. If a man was caught commiting robbery and refused to confess, the judge beat him on the head with a club or ran iron into his legs, as long as he remained obdurate. The steal-

ing of cattle and slaves was severely punished, and executions were very frequent. Nobles who rebelled not only lost their lives and property, but their children and dependents were similarly punished. The etiquette of the court had an Asiatic character. The prince took his meals out of a separate dish, not even his wife shared it. The grandees ate at some distance from the prince, sitting on stools or kneeling on the ground. They used their enemies' skulls as drinking cups. The left was the side of honour. On the conclusion of a contract the oath was sworn over a bare sword while dogs were meanwhile cut in pieces, a practise still well known in Siberia.

We have now completed our survey of the Bulgarians and shown how close akin they are to the Serbs and Croats, all having an aristocracy or upper class of Ugrian descent which is closely connected in blood with the Hungarians. In the next paper of this series we shall deal with the Slaves of Macedonia, Greece, and Southern Hungary.

MAY 24TH, 1881.

Major-General A. PITT RIVERS, F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following list of presents was read, and the thanks of the meeting voted to the respective donors:—

FOR THE LIBRARY.

From Lieut.-Colonel R. G. WOODTHORPE, R.E.—Report of the Exploration of the Angami Naga Country. By Dr. R. Brown.

—— Rough notes on the Angami Nagas and their Language. By Captain John Butler, B.S.C.

From J. W. POWELL, Esq.—Abstract of Transactions of the Anthropological Society of Washington, D.C.

From the GERMAN ANTHROPOLOGICAL SOCIETY.—Archiv für Anthropologie. Band. XIII, 3.

From the SPANISH ANTHROPOLOGICAL SOCIETY.—Antropologico, No. 5.

From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, 1881, Hefte 1, 2.

From the SOCIETY.—Proceedings of the Asiatic Society of Bengal, March, 1881.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1486, 1487.
—— Mittheilungen der K.K. Geographischen Gesellschaft in Wien, 1880.
From the INSTITUTION.—Journal of the Royal United Service Institution, No. 109.
From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, July, 1880.
From the EDITOR.—"Nature," Nos. 602, 603.
—— Revue Scientifique, Tom. XXVII, Nos. 20, 21.
—— Correspondenz-Blatt, No. 5.

The following paper was read by the author, and illustrated by a large collection of objects of ethnological interest:—

On the ANDAMANESE *and* NICOBARESE OBJECTS *presented to* Maj.-Gen. PITT RIVERS, F.R.S. By E. H. MAN, Esq., F.R.G.S. M.R.A.S., M.A.I.

[WITH PLATES XXIII TO XXVI.]

IT has been with considerable reluctance that I have accepted the invitation of General Pitt Rivers to describe the Andamanese and Nicobarese objects added by me last year to my previous collection, sent in 1877, for I have but little information to offer beyond what I then gave, and which formed the subject of some interesting remarks from General Pitt Rivers in January, 1878. At his suggestion I propose this evening supplementing the few observations I have to make on the objects now before you, by giving you a faint outline of a monograph which I have in course of preparation on various points of ethnological interest connected with the Andamanese, and which I hope ere long, leisure permitting, to have the honour of presenting to this Institute.

It is now very generally known that, prior to the establishment of our present penal settlement at Port Blair in 1858, and even for some time after, our knowledge of these aborigines—so frequently and incorrectly called Mincopies—was limited to that of their being negritos in almost the lowest state of barbarism, while many ideas which were erroneous and unfounded were entertained regarding them, as, for example, that they were addicted to cannibalism, and that their marital relations were extremely lax.

The fact of my having passed eleven years at the Andamans, during four[1] of which I had charge of the homes established by

[1] Viz., from July, 1875, to July, 1879.

Government for the purpose of reclaiming these tribes, as far as possible, from their savage state, is the chief ground on which I would claim your attention this evening; and as I succeeded in acquiring a knowledge of the South Andaman dialect, and had a more or less close acquaintance with members of no fewer than seven out of the eight tribes of Great Andaman, I have naturally enjoyed great facilities for obtaining information,—greater, indeed, by far than fell to the lot of any other European, or at least of any who have hitherto written on this subject.

In the remarks to which I have alluded, General Pitt Rivers pointed out the characteristics of the various objects comprised in my first collection, a large number of which were admirably illustrated in the lithographed plates which accompanied the report in the Institute's journal (*vide* Vol. vii, Plates xii–xvi). Beyond correcting some misapprehensions which appear to exist on certain points, and replying to the questions contained in General Rivers' paper, it is not my purpose this evening to make any reference to the objects already described, but to give you some information respecting the additions which I have lately made to the collection, and then to say a few words about the people themselves.

For convenience' sake I will make my comments, as far as possible, in accordance with the sequence of the observations calling for remark in the paper, and in the discussion which ensued thereon.

I. Allusion was made[1] to a belief once current that the Andamanese "broil their meat over a kind of grid made of bamboos." This, as is now well known to us at the Andamans, is incorrect. The idea is perhaps traceable to the practice, almost universal among them, of placing, at a height of two feet or so above their hut-fire, a sort of grating of twigs or bamboo, sufficiently large to hold a small supply of provisions, which are thus preserved, by means of the smoke, from the attacks of animals and insects. In his recent work on Anthropology (page 265), Dr. Tylor mentions the existence of a similar custom among certain Brazilian tribes.

While on this subject, I would briefly describe a method of cooking food, which, as far as I know, is practised only by the Andamanese. I have here a bamboo vessel—called *gōb(da)*[2]—

[1] *Vide* "Journal of the Anthropological Institute," vol. vii, p. 434.

[2] For the list of symbols adopted for denoting the sounds in this language as well as that of the Nicobarese, see Appendix II at the end of this paper. I would take this opportunity of acknowledging the valuable assistance so kindly afforded me by Mr. A. J. Ellis, F.R.S., in determining my present list of symbols. All differences occurring between this and my previous system of representing the sounds of these languages have been made in deference to his advice.

This termination *da* is common to most substantives adjectives, and many

which serves, first, to contain the food they may require on a journey, and, subsequently, as a cooking pot when the time comes for its consumption. The size of the vessel is usually determined by the length of a single cell in the bamboo. Previous to being used it is washed, cleansed, and dried over a fire. Meat or other food in an uncooked, or partially cooked state, is then packed into it, and a leaf is secured over the mouth. When the food is required the vessel is placed on a fire, and constantly turned, so that all parts are equally burned; it is afterwards split open, and the contents being thoroughly cooked, are disposed of among the assembled epicures. From this it will of course be understood that this bamboo vessel is only capable of being used on a single occasion. The *gōb* also serves as a water vessel.

II. As regards the question[1] of the stature and size of the Andamanese, I would mention that the result of the measurement of 48 male and 41 female adults showed that the former average 4 feet 10¾ inches in height, and 98½ lbs. in weight, and the latter 4 feet 7½ inches in height, and 93¼ lbs. in weight.

III. After a close examination of several shaven scalps I am satisfied that the hair[2] is uniformly distributed, and does not grow in separate tufts with bare intervals. This result was anticipated by General Pitt Rivers and Professor Flower, as shown by the remarks they made on the occasion above mentioned.

IV. Bow-traps[3] are quite unknown to the Andamanese, as are also the blow-pipe,[4] wamera,[5] or throwing stick, and the boomerang.[6] The last two, indeed, could not be used, except along the shore, seeing that the whole country is covered with more or less dense jungle. In respect to the blow-pipe I would remark that, as the principal feature in this weapon is the poison in the dart, without which the projectile would be comparatively harmless, it is easy to understand why it never occurred to them to devise such a weapon, seeing they are ignorant of the use and even of the existence of poison, except perhaps in the fangs of venomous reptiles, and in the *Nux Vomica* which is found in their jungles.

adverbs. It can only be used when these words occur alone or at the end of a sentence, and I am disposed to trace its origin to the defective or partially obsolete verb *ēdāke*, to be. Its employment being optional, it is placed within brackets; example: Where? tekarichâ(da)? That man is good, ·ōl abūla bēringa(da).

1 Page 438.
2 *Ibid.*
3 Page 441.
4 Page 442.
5 Page 441
6 Page 445.

V. The Little Andaman bow[1] is not made of *bamboo*, as will be observed on examination, but of a hard wood called by the Andamanese *lōkoma(da)*, the botanical name of which I am at present unable to furnish.

VI. The harpoon-arrow[2]—*ēla(da)*—is used *only* on land, and chiefly in pig-hunting. The harpoon-spear—*kowai·a lôko dūtnga (da)*—is used only on the water, in hunting turtles, dugongs, porpoises, skates, and other large fish.

VII. With regard to the question of the material[3] used in former times by the Andamanese in the construction of their adze-blades and arrow-heads, they persist in stating that when iron suitable for such purposes was not procurable from wrecked vessels, their ancestors used to make their adze-blades of *Pinna* shells, and their arrow-heads either of the same material or preferably of the *Perna ephippium*. The latter shell, indeed, bears the name of *ēla(da)* which is the designation by which the pig-arrow is still known. In the case of the adze, however, they assert that recourse to such an expedient as the use of shell was comparatively rare, as iron sufficient for making these tools was generally procurable. They account for the stone celts discovered in kitchen-middens[4] by stating they must be either refuse pieces of stone broken in forming shaving and tattooing chips, or portions of cooking stones—*lâ(da)*—which, while in use, split in such a way as somewhat to resemble a celt. This, however, is only negative evidence, and further researches by competent authorities may not improbably confirm the belief held by some that the statements of the present inhabitants on this point must be disregarded in favour of the opinion expressed by the late Dr. Stoliczka.

VIII. For the purpose of boring[5] small holes in wood they use their iron-tipped arrow—*tôl-bōd(da)*[6]—or turtle-harpoon—*kowai·a*

[1] Page 441.
[2] *Ibid.*
[3] Page 443.
[4] "The fourth kind of articles found in the Andamanese shell-mounds, and worthy of notice, are those of stone implements. . . . Mr. R—— extracted among others on the spot, a beautiful polished celt of the usual trapezoid form, about 2½ inches long, laterally compressed, narrower on one end, broader on the other, and with a sharp edge ground down from either side. This specimen was indistinguishable from any of the European, or Indian celts of the so-called neolithic period. . . . Beside this, a small, but typical, arrow-head was found. All these materials are of a tertiary sandstone, which is almost the only rock to be met with in this neighbourhood of the harbour. These celts, &c., clearly indicate that they were used by the Andamanese as weapons of the chase, or as implements in opening the shells, &c. They could, however, hardly be regarded as sufficient for killing the Andamanese pig, as already pointed out by Mr. Theobald, a few years ago."—("Note on the Kjökkenmöddings of the Andaman Islands," by the late Dr. F. Stoliczka, v. "Proceedings. As. Soc. of Bengal, January, 1870.)
[5] Page 443.
[6] *Vide* vol. vii, plate xiv.

(*da*); larger holes are made by means of the adze—*wŏlo*(*da*),[1] which is also employed for digging graves. For up-rooting yams and other edible roots a long pointed stick, called *lâkà*(*da*) (Plate XXIII, fig. 2), is used. This tool reminds one of a similar implement in use among the Australians, a sketch of which is given at p. 216 of Dr. Tylor's "Anthropology."

IX. The Andamanese are unable to produce fire,[2] and there is no tradition pointing to the belief that their ancestors were their superiors in this respect. As they live in the vicinity of two islands, one of which contains an extinct, and the other an active volcano, it seems not unreasonable to assume that their knowledge of fire was first derived from this source.

X. Nothing of the nature of the fish-hook[3] is made by them, and, although an ample supply might be obtained by requisitioning us, they never apply for any, for the very good reason that they are able to catch fish far more readily by shooting, spearing, and netting, than the most skilful fisherman by hook and line. The only implement of a hooked nature in use among them is the crook-like pole (Plate XXIII, fig. 1), called *ngâtanga* (*da*), employed in gathering fruit, more especially jack fruit (*Artocarpus chaplasha*).

XI. The torches[4] used by the Andamanese consist of resin covered with leaves of the *Crinum lorifolium*, whereas those of the Nicobarese are merely dried cocoanut leaves tied together.

XII. As regards the two varieties of Andamanese canoes,[5] there can no longer be any doubt that the outrigger is not the modern form, but the ancient, as suggested by General Pitt Rivers in his paper. Their paddles are not made by women, as has been asserted, nor are they of any prescribed size, this being dependent on the will of the maker, or the material at his disposal. I cannot agree with Dr. Mouat in the extravagant eulogy he bestows on the skill of the Andamanese boat-builders. A glance at the models of an Andamanese[6] and a Nicobarese canoe (Plate XXIV), will convey some idea of the clumsy construction and inferior workmanship of the former, and of the many excellent qualities possessed by the latter. I can find nothing, even in the way of tradition, to support the belief, still held by some, that the Andamanese at any period employed fire, as do the Nicobarese, to assist in the work of forming a canoe; but the most striking error I have met with is the alleged existence of so called oven-trees. As during my long acquaintance with these

[1] *Vide* vol. vii, plate xiii.
[2] Page 443.
[3] Page 444.
[4] Page 447.
[5] *Ibid.*
[6] *Vide* vol. vii, plate xii, fig. 69.

savages, and of their habits, I had never observed anything to account for such a statement, I made careful enquiry, the result of which has led me to suppose that the fable, if I may so call it, originated in the practice they frequently adopt, when overtaken by a storm, of sheltering themselves in the spaces formed by the large buttress roots of trees of the *Ficus* species which are so commonly met with in their jungles. In these shelters all that they require to protect them from the inconveniences occasioned by a heavy storm are a light leaf covering, and a fire which, from being placed in the recess formed by the junction of the roots, may have conveyed the impression to some casual observer that the tree had been purposely charred and hollowed out to form an oven. A fancy sketch of a pig being roasted in one of these imaginary oven-trees, which appears in a well known work, was once shown by me to a party of Andamanese who were vastly entertained by the inventive skill displayed by the artist on this subject.[1]

XIII. On no occasion have I observed an Andamanese using the skull of a deceased relative as a receptacle,[2] and I have, moreover, been assured by them that such has never been the practice. The opinion expressed by Mr. St. John on this point may possibly have originated in the accidental insertion of some small object, as, for instance, a portion of the shell (*Dentalium octogonum*) with which these unsavoury souvenirs of the dear departed are usually decorated, as will be seen in the specimen now exhibited (Plate XXIII, fig. 7).

XIV. The pig is by no means considered unclean,[3] and the sole reason given for not using the bones of this animal in ornamental necklaces is that they are large and coarse, and ample material for all their requirements in this line are found in those of iguanas, turtles, and paradoxuri.

XV. I have no hesitation in denying that the Andamanese ever make "holes in the sand for purposes of habitation."[4] Their children sometimes amuse themselves by playing at mock-burials in the sand, and as these, in imitation of the original, generally take place near some boulder or conspicuous tree, it has occurred to me that the "holes scooped out in the sand beneath an overhanging rock large enough to contain a single person," which Dr. Dobson observed near Port Mouat, were merely the traces of such games, unless, indeed, they were the temporary resting-places of some ticket-of-leave fishermen, or runaway convicts.

[1] At the request of General Pitt Rivers, a letter which he has addressed to me on this subject is appended to this paper (Appendix I, p. 290).
[2] Page 449.
[3] *Ibid.*
[4] *Ibid.*

XVI. As doubts were expressed[1] whether the iron objects sent from the Nicobars had been manufactured there, I would affirm positively that such is the case.

The following, I have reason to believe, is a complete list of these objects, specimens of which are before you:—

1. Shaneṅ[2] Mong-hēang.
2. „ Hoplōap.
3. „ Kopatōu.
4. „ Yanô·ma.
5. Miâṅ[3] Mòm-âṅ·ya.
6. „ lōe.
7. „ fōan.
8. „ tanaiṅ (or kentem at Katchall Island).

9. Hinweṅh (or hinlâk).
10. Kan-shōka.
11. The arrow-heads of the cross-bow (Fòin) and children's bow (Bel).
12. Homyâh·ta.

Of these the most remarkable is the *Homyâh·ta*,[4] for, although resembling a spear, it is not a weapon, but an *ornament* which the natives of Chowra alone venture to construct in consequence of a superstitious belief held regarding it. These *homyâh·ta* are met with in almost every village excepting those of the southern[5] group, and are not, as I was once led to believe, badges of honour or authority, but, being costly, only the wealthy members of the community can afford themselves the luxury of possessing more than one or two. Inferior imitations are sometimes brought from the Straits Settlements by the Malay traders, who find them profitable mediums for barter, as they do also certain spears similar to the *Hoplōap* (called *Shaneṅ Kaling*[6] *i.e.*, foreign spear).

1. The *Shaneṅ Mong-hēang* is used for spearing pigs;
2. The *Shaneṅ Hoplōap* is used for the same purpose, and also sometimes for sharks and crocodiles;
3. The *Shaneṅ Kopatōn* (Plate XXVI., fig. 8); and
4. The *Shaneṅ*[7] *Yanô·ma* are weapons with which they arm themselves when visiting distant villages, for use in case of a dispute or assault taking place. Before leaving their homes on these occasions they call upon

[1] Pages 450 and 468.

[2] *Shaneṅ* denotes a bladed spear, and

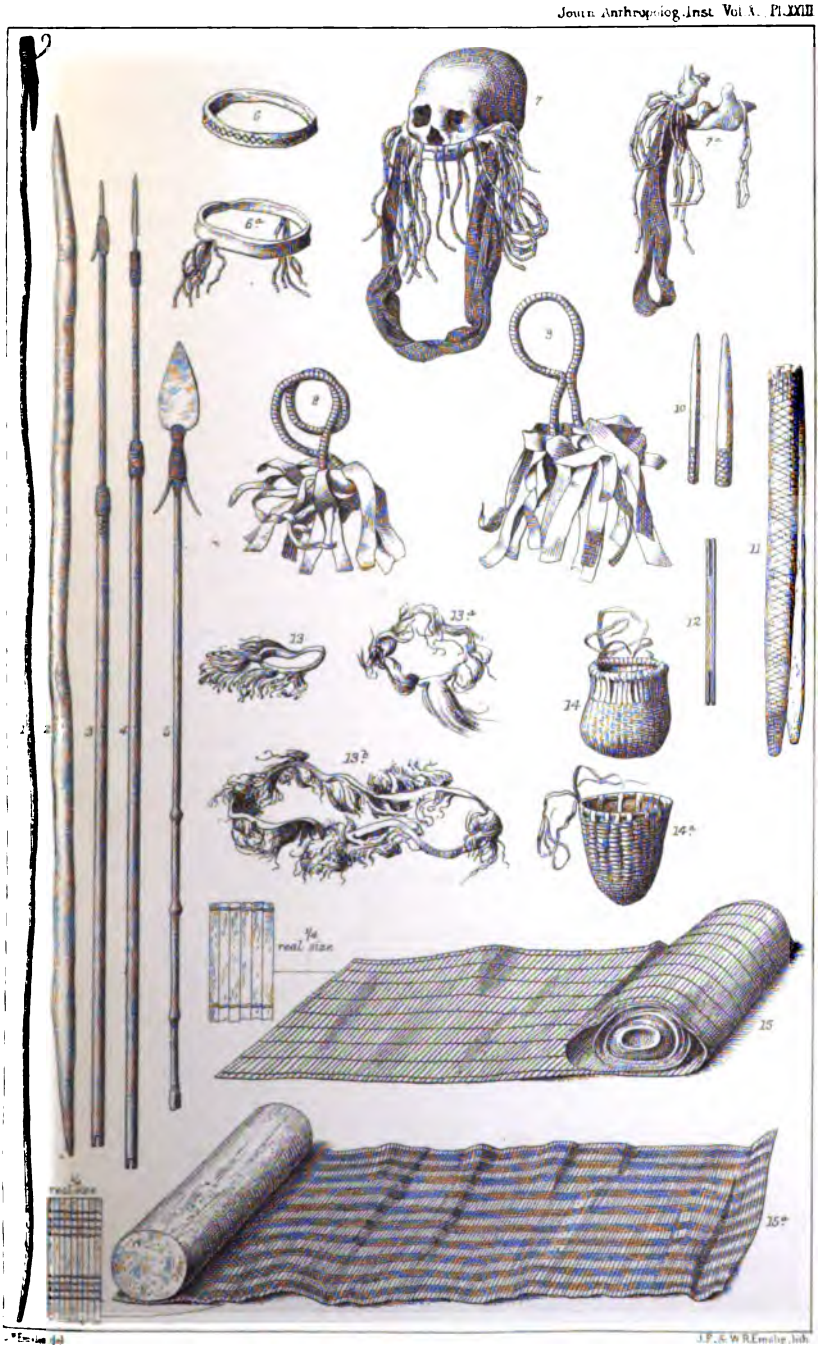
[3] *Miâṅ*, one having iron prongs.

[4] *Vide* vol. vii, plate xv, fig. 11.

[5] These comprise Great and Little Nicobar and adjacent islands, while the *central* group includes Camorta, Nancowry, Trinkut, and Katchall; and the *northern* consists of Car Nicobar, Chowra, Teressa, and Bompoka. The two remaining islands Tillangchong and Batty Malve are uninhabited.

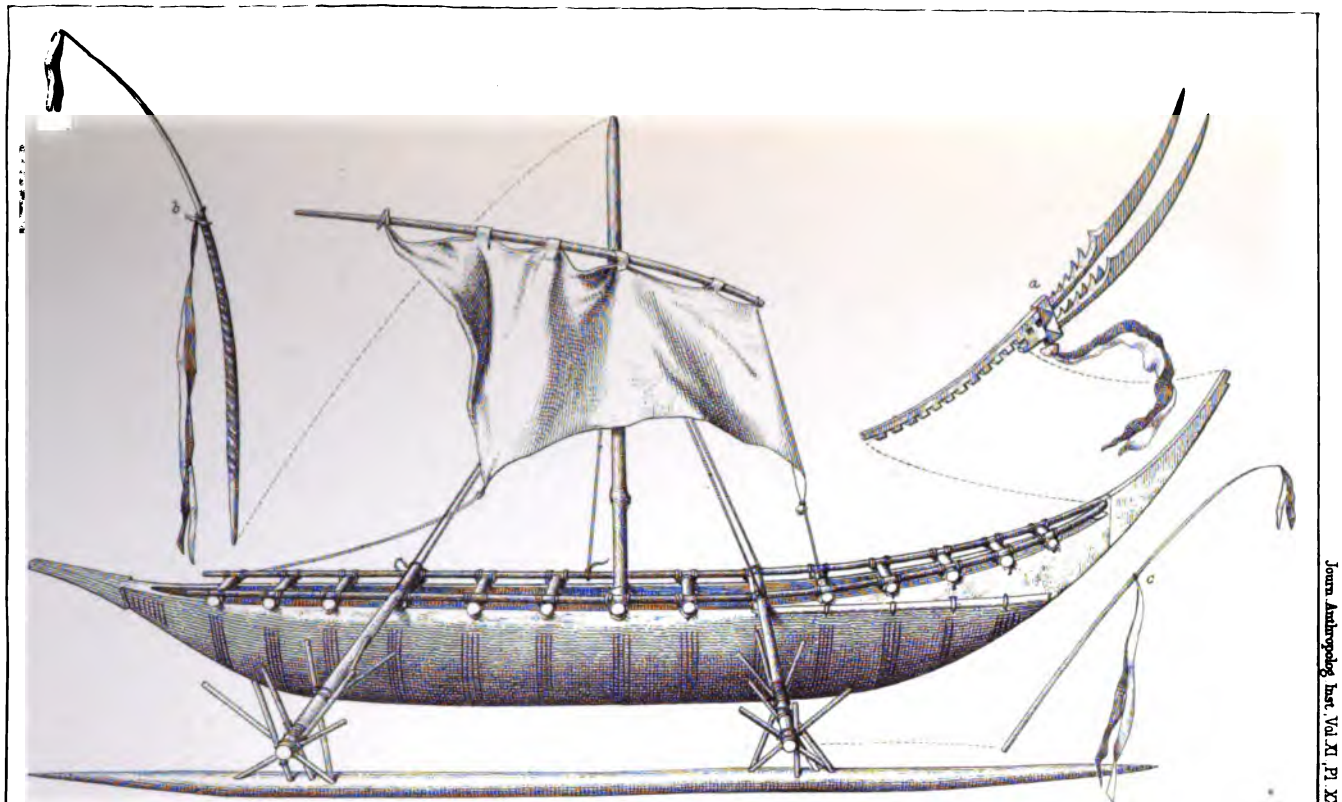
[6] *Vide* vol. vii, plate xv, fig. 9. The only difference is that the shoulders of the *Hoplōap* blade are rounded, while those of the Malay imitation are more or less angular.

[7] *Vide* vol. vii, plate xv, fig. 2.



ANDAMANESE OBJECTS

obtained by Mr E.H. Man



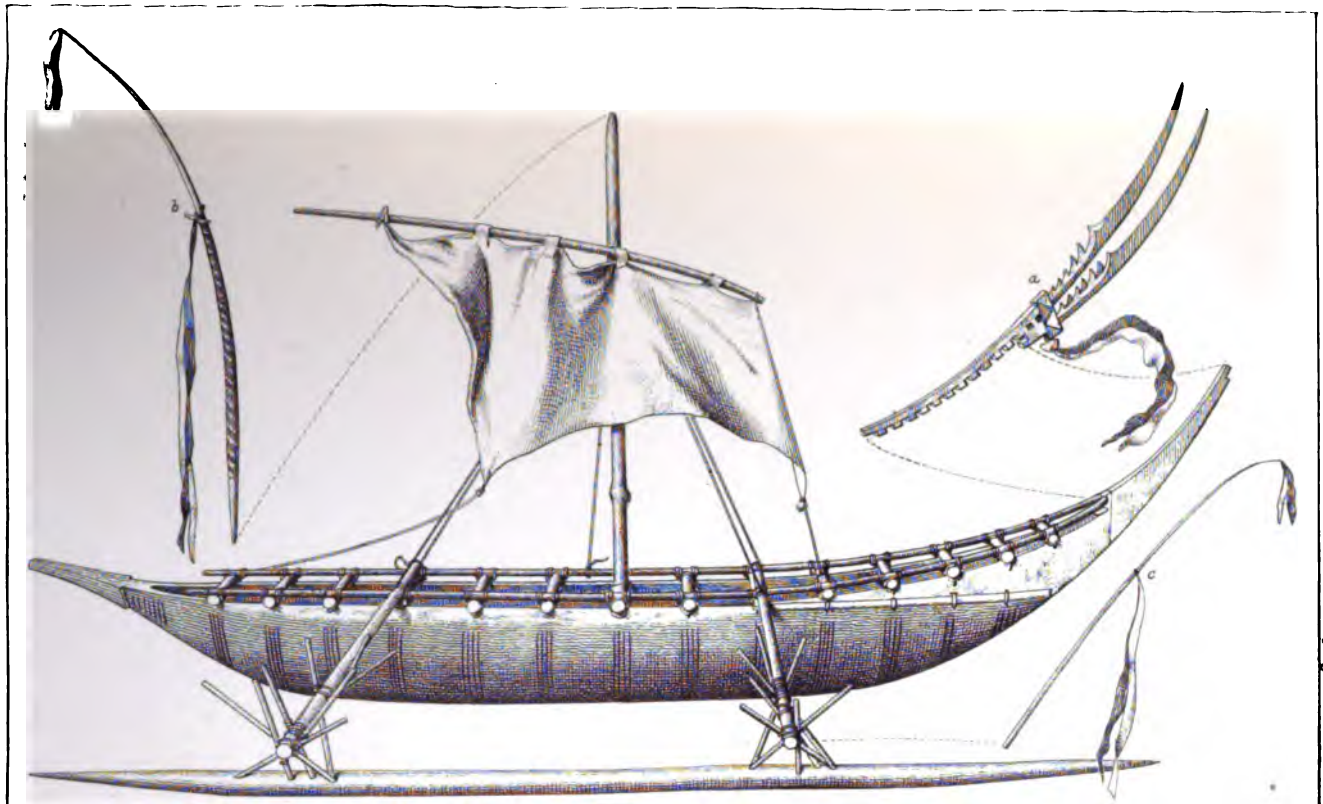
J.P. Emslie, del.

J.P. & W.R. Emslie, lith.

Journ. Anthropolog. Inst. Vol. XI. Pl. XXIV.

MODEL OF NICOBARESE CANOE

obtained by Mr E.H. Man.



J.P. Emslie, del.

J.P. & W.H. Emslie, lith.

Journ. Anthropolog. Inst. Vol. XI. Pl. XXIV.

MODEL OF NICOBARESE CANOE

obtained by Mr. E.H. Man.

Wai dōl 'ôko-Jūwai èremtâga.
Indeed I jungle dweller.
Dīa èr lōt ting Tôlo-bòicho jūru
My village of name sea
tek elarpâla(da).
from far.
Mōda ela-wângaya būd tek tōtgóra
If daybreak at home from coast
len nâunga-bēdig tilik dīla
to walking by perhaps evening
len kâgalke.
in reach.
Med-ârdūru ōgar jībaba ēkan èr
We all months several own villages
len pòlike ngyâ târōlolen jeg
in live then afterwards dance
lēddre âryôto līa paichalen yâu-
for coast-men among go
gake. 'ôna ūcka naikan jeg-
When this like go for a
ikke ârlalen īgal lēddre mīn
dance always barter for something
tōyuke, kich'ikan reg-dama, ēâte
take namely pork also
reg-kòi'ob, ēâte râtà, ēâte
red paint wooden arrows
jōb, ēâte châpanga, ēâte kūd,
baskets reticules hand-nets
ēâte râb, ēâte tâla-ōg,
necklaces of netting white clay
ēâte tâlag, ēâte pàr'ēpa, ēâte
hones sleeping mats
kâpa-jâtinga âwak.
leaf screens etcetera.

I belong to the inland section of the *'ôko-Jūwai* tribe.
The name of my village is *Tôlo-bòicho*. It is far from the sea.

If one were to start for the coast at daybreak one might, perhaps, by walking all day, reach it in the evening.

We all live for several months together in our own village, and then we go to the coast people for a dance. When we make a trip for this purpose, we always take with us some things for bartering, viz.: pork, red paint made with pig's fat, wooden-headed arrows, baskets, reticules,[1] hand-nets for fishing, ornamental necklaces of netting, white clay for ornamental painting of the person, hones, sleeping mats, leaf screens, etcetera.

"On our arrival we first, according to custom, sing and dance, after which we barter all our things, and then some of us go with some of the coast people in their boats in order to witness their skill at spearing, we meanwhile being seated in the bottom of the boats. The rest of us accompany their friends among the coast people at pig-hunting.

"After a few days we pack up the things we have received in exchange from the coast people, such as pig-arrows, iron, knives, adzes, bottles, red paint made with turtle fat, turtle flesh, nautilus shells, *Pinna* shells, *Dentalium octogonum Hemicardium Unedo* ("strawberry") shells, &c., and then taking leave we return to our home.

"Just as the coast-people by hunting, fishing, and other means, experience no difficulty in regard to food, so also in every season do we, who live in the heart of the jungle, find plenty to eat.

[1] I can think of no word more suitable to describe this object, as it is literally a "small net-work bag" which serves precisely the same purpose as the elegant equivalent so commonly used by ladies in lieu of a pocket.

"All we inland tribesmen remain at our own villages during the rains. We only go our round of visits during the fruit season, when there is no rain. It is then that we go to see our friends at distant encampments. After an absence of a month or two we return. We again leave our homes towards the close of the dry season, in order to collect and bury the seeds of the jack fruit (*Artocarpus chaplasha*). In about a month we return to our homes.

"In our tribe those living in the heart of the jungle are more numerous than those living on the coast. *Tôlo-bòicho* is larger than *Bârlâkàbīl*[1] but there are many villages in our jungle larger than *Tôlo-bòicho*. Our huts are also larger than those of the people on the coast, and, moreover, last several years without renewal.

"During the whole year we all find plenty of food close to our homes. We find it sufficient to go only now and then to get food. We constantly spend our time in dancing and singing.

"When any one dies in our village we all migrate to some vacant camping-ground, where we provide ourselves with temporary huts in which we live according to custom for a few months; after which we recover the bones of the deceased, and return to *Tôlo-bòicho* in order to weep and dance over their distribution.

"Except in such cases as that just mentioned, the old people and children always live at their own villages. The women only pass the night away from their own homes when they accompany us (men) in the fruit season for the purpose of paying our (annual) visits to our friends; otherwise they, like the old people and young children, always remain at their own villages.

"When engaged on a hunting expedition we men, during the rains, often spend a couple of days away from our homes.

"As we who live in the heart of the jungle do not, like the coast people, migrate from one encampment to another, we deposit all our rubbish and refuse matter at such a distance from our villages that we are never troubled with offensive odours.

"There are a few permanent encampments among our coast people. There they often live for months together, while the rest of them are constantly shifting their quarters from one (temporary) encampment to another.

"There are large kitchen-middens[2] near our villages as

[1] A well known coast encampment near Flat Island.

[2] "The kitchen-middens are always situated close to the sea-shore. The occurrence of them far inland would indicate that some terrestrial changes in the islands have taken place."—(Stoliczka).

[NOTE.—When writing the above lines, in 1870, Dr. Stoliczka was unaware of the existence of permanent dwellers in the interior, hence the error into which he fell.]

well as near the (permanent) encampments of the coast-people.

"I have been into the heart of the *·âkà-Ked·ē* territory, when I observed that there were a vast number of inland people living among them. We are of opinion that they are more numerous than ourselves. I have now seen all the people of the South Andaman tribe. Their number is very small.

"Near the coast the jungle is always dense, but where we live (*i.e.*, in the heart of the jungle) it is not so.

"We are acquainted with the customs and habits of the *Bōjig-yâb* and *·âkà-Kôl* tribes. They resemble ours. As with us of the *·ôko-Jūwai* tribe, so among them are there both those who live on the coast, and those who live in the interior. There also the latter are in the habit of living for months together in the heart of the jungle, and remaining each one at his own encampment. As only a small portion of the *Bōjig-yâb* territory is far from the sea there are but few *èrem-tâga(da)* (in that tribe)."

I may mention that the foregoing statement has been fully confirmed by enquiries made by me in other quarters.

Until recent years not only did the belief prevail that no encampments or kitchen-middens exist except on the coast, but also that the entire race is nomadic to such an extent that they rarely occupy the same place two nights in succession. Although the majority of the coast people do lead a nomadic life, there are among them not a few permanent encampments which, like the villages in the interior, are never deserted except when a *jeg*, *i.e.*, dance or "corroboree" (as called by the Australians), takes place at some other hamlet, or when a death occurs, on which occasion, like the inland tribesmen, the *âryôto* invariably give the ghost of the departed a wide berth, by abandoning their homes for several weeks or months.

In the permanent as well as in the temporary encampments of the eight Great Andaman tribes, the huts almost invariably partake of the character of the simple lean-to; there are three distinct varieties recognised under the names:—*châng-tēpinga(da)*, *châng-tôrnga(da)*, and *châng-dar·anga(da)*. The first of these is found only in permanent encampments; it is the most durable, being neatly and strongly thatched with palm leaves plaited into rolls and so fastened together with cane as to form a roof impervious even to the heavy rains so common in these latitudes. It is capable of affording accommodation for about half-a-dozen persons. Sometimes these huts are placed together in such a way as to resemble small sheds. As this has hitherto only been noticed in South Andaman and the southern portion of Middle Andaman, it is possible that the practice originated from their observing the form of our barracks at Port Blair.

The second variety, *châng-tôrnga(da)*, differs only in being smaller and less neatly thatched; it is generally erected in temporary camping grounds, when a stay of a few weeks or months is contemplated, as, for instance, during the mourning period which, as I have just mentioned, is invariably spent at a distance from the spot where the death occurred.

The third kind, *châng dar·anga(da)*, are little more than leafy shelters, capable of accommodating two or three persons only, which the women erect, when a halt is made for a few days or even hours at one of the numerous camping-grounds. Without disparaging the capabilities of the fair sex when on their own ground, it must be conceded that there are some things which lie outside their province; and Figuier's statement, that the Andamanese live in "lairs," can only be fairly explained by the assumption that the *châng-dar·anga(da)*, so commonly met with along the coast, which are the handiwork of women, was the only type of Andaman dwelling known to the traveller who constituted his authority.

In Dr. Tylor's "Anthropology," to which I have already referred, allusion is made to the palm-leaf shelters erected by the naked Puris in the depths of the Brazilian forests. From the description given it is evident that they much resemble the *châng dar·anga(da)* of the Andaman Islanders. Dr. Tylor also mentions the alleged practice among the Andamanese of scooping holes in the sand as a temporary habitation, but, as already affirmed by me in the foregoing, there is no such practice traceable among these tribes.

Although the sites selected for occupation are usually well sheltered, it is not always found possible in tempestuous weather, even in the more or less dense jungle which covers every portion of their country, to obtain shelter sufficient to allow of all their huts facing inwards towards the *bū·lūm(da)* or dancing-ground. The primary consideration being naturally to secure as much comfort as possible, the sloping roof is at such times presented towards the prevailing wind. It is hardly necessary to add that the sites of their permanent, as well as many of their temporary encampments, are in the vicinity of freshwater springs or streams.

The *Jàr·awa* huts are certainly superior to those inhabited by the eight Great Andaman tribes; they are generally circular in form and have been found to measure as much as 50 feet in diameter, and 30 feet in height. The idea would seem to have been borrowed from the Car Nicobarese, with whom, in past years, they had some encounters, and whose huts are almost invariably of the beehive pattern.

The furniture in the primitive huts of Great Andaman will not

need lengthy description as, besides the sleeping mat, *pàr·ĕpa(da)*, or bed of leaves and a few implements and utensils, it consists simply of a sort of grating of twigs, supported by one or more sticks over the fire, which is an indispensable requirement of every Andamanese home. These gratings, as I have already mentioned at the commencement of this paper, serve as larders, while the smoke from the fire preserves the provisions from the attacks of insects. From the front of the roof, by way of ornament, are hung trophies of the chase, or these are strung on poles stuck in the ground, for a fine display of skulls of pigs, turtles, dugongs, &c., excite envy and admiration among their neighbours and acquaintances much in the same way as drawing-room walls, covered with plates of quaint and diverse patterns, delight the eyes of our modern English æsthetes to whom I would offer the idea when seeking for the next novelty in decoration.

As we have seen from *Wŏi's* statement, it is the custom among the people in the interior and in the few permanent communities on the coast, to clear away at once all rubbish from the vicinity of their dwellings, and the necessity for such sanitary measures would seem to have been long since recognised by them to judge by the numerous kitchen-middens scattered throughout their territory, many of which are evidently of remote origin. Such habits of cleanliness are not, however, observed among those of the coast-dwellers who are constantly on the move; they content themselves with sweeping the dancing-ground—and that only when a dance, wedding, or other ceremony is about to take place—lest injury should befall any of the revellers through inadvertently treading on a flint, shell, or bone; the rest of the camping ground is left to self-constituted scavengers, such as crows, iguanas, hermit-crabs, and dogs which, during the migrations of the party, fulfil this necessary and useful office.

It is impossible, without encroaching too much on your time, not to pass over many details regarding the manners and customs of this race, which are well deserving of notice, but these omissions I purpose supplying in the monograph which I am preparing; for the same reason I now leave the points relating to their physical peculiarities in order to touch upon matters of more general interest.

All who have been for any length of time associated with these savages cannot but remark with regret that, from contact with civilization, they lose the primitive virtues of truthfulness, honesty, and industry, which were marked characteristics of their former state. In many points they appear to resemble the Papuans, being merry, talkative, petulant, inquisitive, and

restless; their speech is rapid, with a constant repetition of the same idea; a joke, if it does not take too practical a form, is heartily appreciated, while all insults or injuries are promptly resented.

The views held regarding their courage are somewhat conflicting. There is no doubt that on many occasions in their early encounters with us they displayed most gallant conduct and utter disregard of their lives, and similar behaviour characterises at the present day the one tribe with whom as yet we have been unable to establish amicable relations, viz., the *Jàr·awa*. My experience, however, and that of many others, leads me to believe that much of this apparent bravery has been due to ignorance of our power and resources, and that, unless confident of their own superiority, and the comparative impotence of their foe, nothing short of despair or uncontrollable rage would cause them to risk a dangerous encounter. In war all is considered fair, and treachery is even commendable. Among themselves, when very angry, they either fire an arrow so as to alarm or maim the object of their wrath, or they place the left hand palm uppermost between their teeth, and glaring fiercely at something on the ground *near* the offender, utter words of terrible import, while a weapon is brandished in the right hand; and there in most cases the matter ends. When a dispute arises between two men which is likely to end seriously the friends on both sides generally endeavour to seize them, and remove their weapons. Should they fail in this, all the bystanders lose no time in beating a hasty retreat, and do not return until assured that all danger is past.

Exaggeration when relating an incident or exploit in which they have taken part is as common here as in certain civilized lands, but the accounts given are generally so highly coloured that they fail to impose even upon the most credulous. "*Yāba l'ârchīke dâke*" is the usual retort made by the sceptical on these occasions, which finds its nearest equivalent in the vulgar but expressive phrase "draw it mild" of our mother tongue: this invariably calls forth a torrent of virtuous indignation from the gentleman of the long bow.

They set no fixed value on their various properties, and rarely make or procure anything for the express purpose of bartering with it. Iron pointed tools and *Dentalium octogonum* ornaments are in great request with the *ēremtâga(da)*, who gladly give in exchange such things as are more easily obtained by them than by the *âryôto(da)*.

These transactions they are pleased to consider as presentations, but it is tacitly understood that no present is to be accepted unless an equivalent is rendered, and, as the opinions

of donor and recipient are liable to differ as to the respective value of the articles in question, a quarrel is not unfrequently the result.

The rights of private property are respected, and, without permission, no Andamanese would appropriate, or remove to a distance, any weapon or tool which belonged to a neighbour; at the same time cooking pots, canoes, and sounding boards,[1] when not in use by the rightful owner, are considered available if required by members of the same community. As may be readily supposed the laws of inheritance are of the simplest. The effects of a deceased person become the property of the next of kin, who, as often as not, speedily bestows them upon such of his friends as may be in need of any of the articles in question.

It is customary for each family to supply itself with the chief necessaries in the shape of weapons and food. The men hunt, collect honey, shoot fish, harpoon turtles, construct boats, paddles, weapons, buckets, the sounding-boards used in dancing, and also build the two kinds of huts I have before mentioned. A certain pre-eminence is assigned to those who excel as hunters or fishermen, and such are usually found to be chosen as chiefs or head-men of a community.

The performance by men of duties which are supposed to pertain only to women is considered *infra dig.*, and, while they will cheerfully carry a heavy turtle or the carcase of a pig, they have a strong dislike to fetching firewood or water for domestic purposes, these being regarded as essentially the work of women and children.

But the duties of the woman do not end when she has provided the necessary amount of water and fuel. It devolves upon her and the children to procure many of the minor articles of food, and she generally does the cooking: in addition to these domestic occupations she employs herself in the manufacture of certain articles in daily use which are considered to fall within her province. Shaving, tattooing, and scarifying make further demands upon her time, as does also the preparation of *Kòi·ob*(*da*), *tâla-ōg*(*da*), and *Kângatâ-būj*(*da*), which are used in painting their persons or their goods on various occasions; and thus it will be seen that little leisure is left for the mischief which is proverbially found "for idle hands to do."

However, in spite of all this seemingly hard work, a lengthened acquaintance with various communities living within a considerable radius of Port Blair satisfactorily proves that perfect equality prevails between husband and wife, and it may be

[1] *Vide* vol. vii, plate xiii, fig. 15.

safely asserted that the treatment she receives from her lord and master would contrast favourably with much that is prevalent among a large proportion of our labouring classes in this land.

The Andamanese have been surprised and even amused at hearing of some of the habits and customs attributed to them; but the accounts given of their marital relations are so absurdly incorrect as to have caused them considerable astonishment. So far from marriage being regarded as a merely temporary arrangement to be set aside by the will of either party, no incompatibility of temper or other cause of disagreement is allowed to dissolve the union; and, while divorce is unknown, conjugal fidelity till death is the rule and not the exception.

The question of propinquity is considered an important one in connection with matrimony, and such persons as are known to be even distantly related are forbidden to marry. Relationships are not traced, however, beyond the third generation, and this must be accounted for by the absence of any system for maintaining records, and also by the fact that the extreme length of life among them cannot be reckoned as exceeding fifty years.

It is an especial and praiseworthy characteristic of these savages that the aged, the helpless, and the suffering are invariably made primary objects of solicitude, while the young are early instructed in the virtues of generosity and self-denial, as well as in the duties of showing respect and hospitality to all friends and visitors.

Among the curious customs of these islanders is one relating to adoption, which would lead to the conclusion that they are entirely lacking in parental affection, whereas, on the contrary, it is a strongly marked feature in their constitution. Few, if any, Andamanese children remain with their parents after the age of six or seven, and this because it is considered a compliment and a proof of friendship for a guest to ask permission to adopt one of his host's children when in a position to do so. The request is never, or, in very rare instances, refused, and the child's home is henceforth with his self-constituted guardian, who is at liberty to part with him, if he please, to a third person without any reference to the parents, who are merely informed of the change in order that they may be able to pay occasional visits to their child, though they have no longer any control or authority over him.

Contrary to the practice among most nations, no salutations are exchanged between friends on meeting after a lengthened absence; but when time is no object they remain speechless, gazing intently at each other for sometimes as much as half-an-

hour; the younger of the two then makes some common-place remark which breaks the ice, and they lose no further time in hearing and telling the latest news. It is usual for them also to exchange such things as bows, arrows, nautilus-shells, &c., which may happen to be in their hands when they meet, and such gifts are regarded as proofs of affection.

Relatives testify their joy at meeting after a few months' separation by throwing their arms round each other's necks and sobbing *à chaudes larmes*, as if their hearts would break. This to us somewhat incomprehensible proceeding is inaugurated by the women, but the men are not long in following suit, and groups of three or four may be seen as if vieing with each other in the loudness of their lamentations of rejoicing until fairly worn out. The day is then wound up with the inevitable dance and song.

No traces, even in bygone years, of any forms of worship or acts of veneration to bodies celestial or terrestrial are to be found; yet there is a vague belief in the existence of One (called *Pūluga*) who, they say, lives in the sky, is Immortal, Invisible, Omniscient in the day time, even reading the thoughts of men, the Creator of the world, and of all objects animate and inanimate, though not of the evil spirits, which are three or four in number. They say that *Pūluga* pities those in pain and distress, and that it is He who sometimes affords relief. There are certain crimes and offences which anger Him, and storms are regarded as evidences of His wrath. He is supposed to eat and drink, and during the dry months He is said to sleep, as thunder, which is His voice, is then rarely heard. But, for all this, their belief in, and dread of, evil spirits is much stronger; almost all deaths sickness, and calamities being attributed to their machinations.

They have confused traditions which seem to correspond to the Fall and the Deluge, as they aver that the latter took place in consequence of their first parents having eaten of a fruit which, at a certain season of the year, *Pūluga* requires for His own delectation, and which He had therefore expressly forbidden them to touch during that period. So strong a hold has the legend on them that, during the first half of the rainy monsoon, they will not eat the *Caryota sobolifera* or pluck the seeds of the *Entada Pursætha* for food; but the prohibition in the latter case does not extend to any seeds which may have fallen to the earth. Another superstition exists regarding the burning of wax, which is supposed to be peculiarly obnoxious to *Pūluga*, and it is a common practice secretly to burn wax when an enemy is away on a hunting or fishing expedition in the hope of exciting *Pūluga's* wrath and causing a violent storm which will spoil the sport.

In tempestuous weather leaves of the *Mimusops Indica* are burned, as the popping sounds thereby produced are sweet to *Pūluga's* ears and have the effect of calming his fury.

The earth they believe to be flat and to rest like a plate on the top of an immense specimen of the *Caryota sobolifera*. A great earthquake will some day cause it to topple over and then those living on it will exchange places with their deceased friends below, who, in order to bring about this most desirable state of things, combine from time to time to shake the tree and thus cause an earthquake. They are, however, said to be careful to make these attempts to hasten the march of events in the rainy season only lest, at other times, the dry earth should crumble and crush them in its fall.

There are certain individuals in these tribes known as *ôko-paiad(da)* (*lit.* a dreamer) who are accredited with supernatural powers, and are supposed to possess a mysterious influence over the fortunes and lives of their neighbours. They are invariably of the male sex, and like the disease-makers of *Tanna* (New Hebrides) are thought to have power to bring trouble, sickness, and even death upon those who fail to propitiate them with continual and substantial gifts.

They employ no special charms and it is chiefly during sleep, which in all probability is feigned, that the power is said to be exercised. When appealed to in serious illness the *ôko-paiad* first examines the patient and presses the limbs, muttering and making sundry strange noises as if invoking and kissing some invisible person; he then informs the sufferer and his friends that he is about to search for the spirit which, at such times, is believed to be wandering in or towards *Jer·eg(da)* or Hades. To this end it is necessary for him to fall asleep, and he accordingly lies down and betakes himself to the land of Nod; after going through the formality of waking he either informs them that he has succeeded in capturing the errant spirit and has brought it back, or, if recovery seems hopeless, gravely assures the anxious assembly that no entreaties would avail to induce *Pūluga* to restore the spirit.

All sudden deaths are attributed to the malign influence of *ērem-châugala* (the evil spirit of the woods), or to that of *Jūru-win(da)* (the evil spirit of the sea); in either case one of the male relatives of their luckless victim approaches the spot where the corpse is lying and shoots several arrows into the jungle, or pierces the ground with a pig or turtle spear, in the hope of injuring the unseen foe on whom he vents his grief in bitter imprecations.

None save infants are buried within the encampment, all others being taken to some distant and secluded spot in the

jungle, where they are interred in a sitting posture in a grave 4 or 5 feet deep, or are placed upon a platform after the Australian method; the latter mode is considered the more complimentary, in that it necessitates rather more labour.

At the obsequies the mourners blow gently two or three times upon the face of the corpse in token of farewell, and, before leaving, light a fire and place a *gōb(da)* (*vide* ante) full of water beside the spot.

When the mourning period has expired (say two or more months) the same party return in order to remove the remains and to prepare and cleanse the bones for further use.

And now, having killed and buried my man, Dr. Allen Thomson will show us that the skeleton has uses and interests for us as well as for the relatives of the deceased.

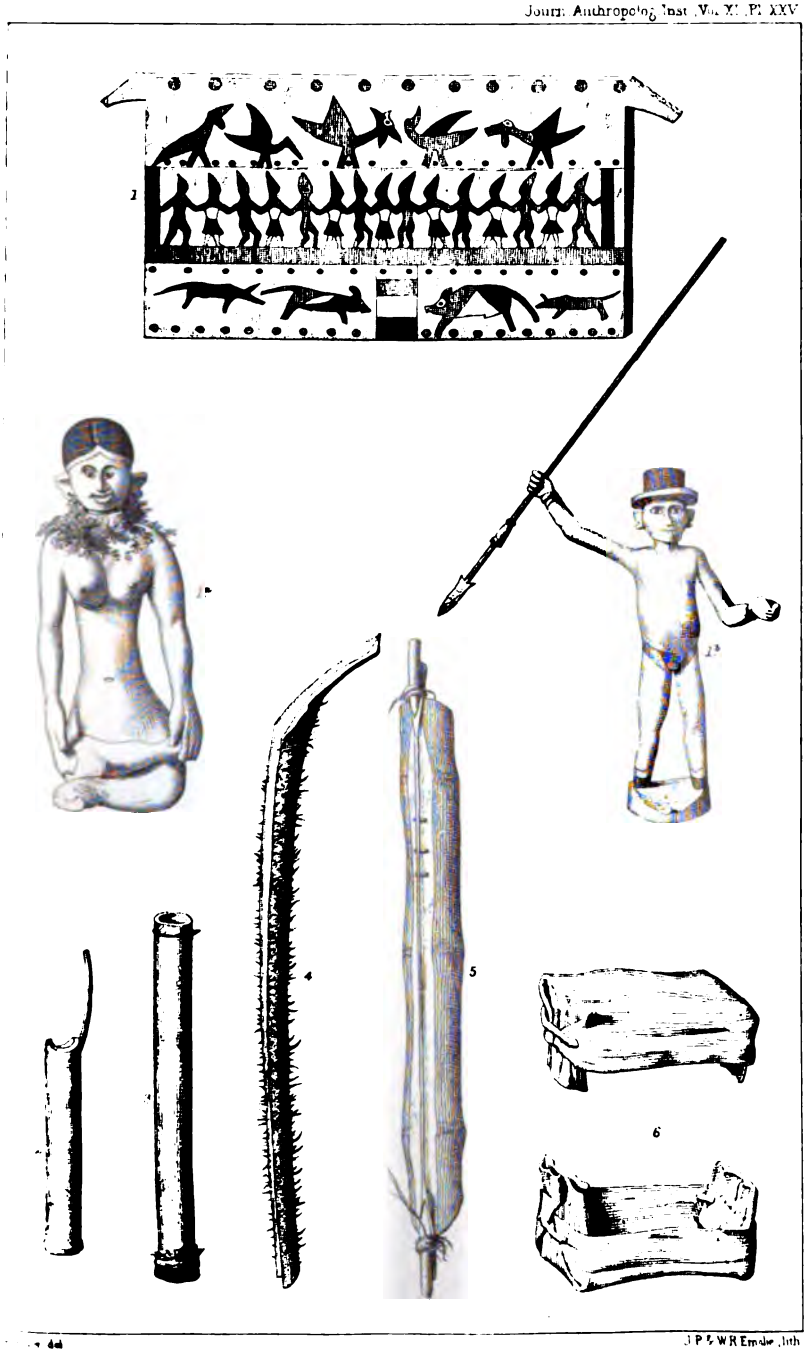
APPENDIX I.

Copy of Letter referred to in foot-note at page 273.

DEAR MR. MAN,

Your remarks on the so-called tree ovens of the Andamanese confirm a suggestion of mine put forward in a paper on early modes of navigation which I read before the Anthropological Institute some time ago, showing that these so-called tree ovens are in reality nothing more than the trees against which fires have been lit. The passage to which I refer is as follows: "I have noticed when travelling in Bulgaria that the gipsies and others who roam over that country usually select the foot of a dry tree to light their cooking fire; the dry wood of the tree, combined with the sticks collected at the foot of it, makes a good blaze, and the tree throws forward the heat like a fire-place. Successive parties camping on the same ground, attracted thither by the vicinity of water, use the same fire-places, and the result is that the trees by degrees become hollowed out for some distance from the foot, the hollow part formed by the fire serving the purpose of a semi-cylindrical chimney. Such a tree, torn up by the roots, or cut off below the part excavated by the fire, would form a very serviceable canoe, the parts not excavated by the fire being sound and hard. The Andaman islanders use a tree in this manner as an oven, the fire being kept constantly burning in the hollow formed by the flames."

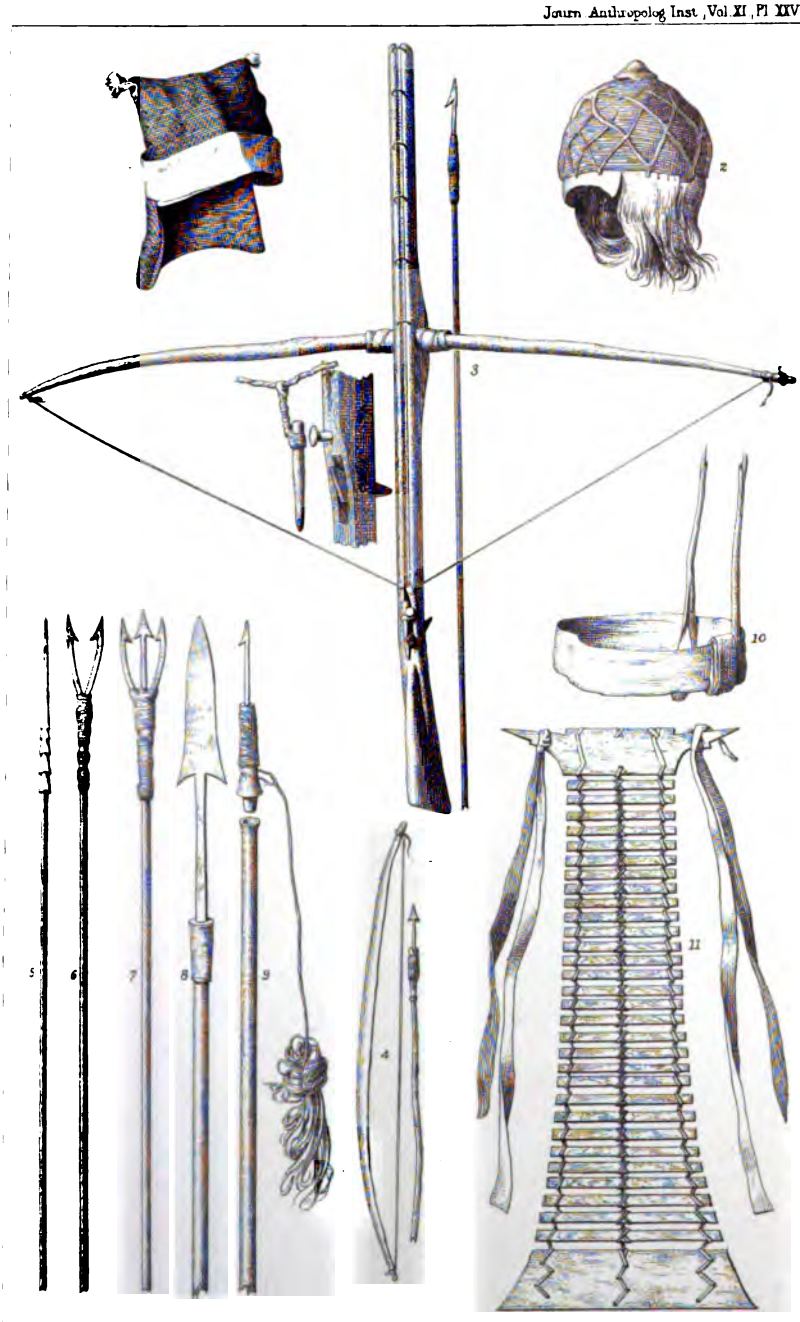
You say in your paper that the Andamanese have no tradition of the use of fire for excavating, but negative evidence is of course insufficient to determine the non-existence of any art. The use of



J. P. & W. R. Emslie, lith.

NICOBARESE OBJECTS

obtained by Mr E.H. Man.



Emslie, del. J.P. & W.R. Emslie, lith.

NICOBARESE OBJECTS

obtained by Mr. E.H. Man.

fire is invariably associated with the employment of stone implements, and the Andamanese having, as you say, lost all tradition of the use of the stone implements which are found in the kitchen-middens may very probably have lost the tradition of the use of fire which is an almost necessary adjunct to the employment of their blunt tools; besides which it is very probable, from the resemblance of their canoes to those of other neighbouring nations, that the art of digging out canoes did not originate independently in the Andamans, and it may even possibly have been introduced since iron was available for adzes. At any rate there is no doubt that in the majority of places where dug-out canoes are employed, fire is used for the purpose, and it seems to me not unreasonable to suppose that the primitive use of a tree as a fire-place, forming as it does a canoe-shaped trunk, may have led in many places to its employment in canoe making.

Yours very truly,
(Signed) A. PITT RIVERS.

APPENDIX II.

List of Symbols employed to denote the Sounds of the Vowels, Diphthongs, and Consonants of the Andaman and Nicobar Languages.

ORAL VOWELS AND DIPHTHONGS.

Symbol.	Example in English, &c.	Example in	
		Andamanese	Nicobarese.
a	woman	al·aba; Bal·awa	yang
ā	deter	bā; yāba	kâtā; dāk
à	mat	Jàr·awa	lèàt
â	father	dâke	kân
e	every; bed; padre (It.)	elâkà; ēmej; pūdre	enyâh; heng; lēbare
ē	(Fr.) père; fête	ēla	lēang
i	lid	igbâdig	ifâ
ī	police	yâdī; pīd	wī
o	redolent	Bòigoli	yōkolai
ō	pole	jōb	larōm
ò	pot	pòlike	òmtōm
ô	awful	tôgo	lôe
u	influence	būkura	kòla-rue
ū	pool	pūdke	hūya
ü	(Germ.) über	..	chüa
ai	aisle	daike	taiyâk
au	house	chōpaua	karēau
âu	(Germ.) haus	châu	ōâu
òi	toil	Bòigoli	enlòin

NASAL VOWELS AND DIPHTHONGS

Symbol.	Example in English, &c.	Example in	
		Andamanese.	Nicobarese.
aṅ	(Fr.) *un*	..	holī·aṅ ; ongī·haṅh
âṅ	*	..	miâṅ ; mòm-âṅ·ya
eṅ	(Fr.) *vin*	..	heṅ·ha ; hinweṅh
īṅ	(Port.) *sim*	..	koīṅ·ha ; amīṅh
oṅ	(Fr.) *on*	..	haroṅh
òṅ	*	..	kan-hòṅ ; òṅh
aiṅ	..	..	tanaiṅ ; taiṅ·ya
òiṅ	..	..	òm-hòiṅ

* These two Nicobarese nasals (âṅ and òṅ) both approach the French *n*, but the first has more of the â, and the second more of the ò sound in it.

CONSONANTS.

b	*b*ed	bōd	lēbare
ch	*ch*ange ; *ch*urch	chât ; michalen ; Rūch	chakâ ; raich
d	*d*ip	dōga	kamin·do
f	*f*en	..	ifē ; fâp
g	*g*ap	gōb	kòg·nare
h	*h*ay	hē ; âweh	hūya ; paiyūh
j	*j*unip ; bri*dg*e	jābag : ēmej	chij
k	*k*ing	kâgalke	kânēâl
l	*l*ap	lōg	lēang
m	*m*an	mūgu	òmtōm
n	*n*un	nâuke ; rōpan	nōt
ñ	(Fr.) ga*gn*er	ōtñâba	manleña
ng	bri*ng*	ngīji ; kēdang	yang
p	*p*ap	pīd	paiyūh
r	*r*est	râb ; râtà	karu
s	*s*ad	..	sâla
sh	*sh*all	..	sho-hōng
t	*t*en	tī	tōak
v	*v*il	..	hen-hoâva
w	*w*et	wōlo ; Bal·awa	wòt
y	*y*ellow	yabā	yang

Notes.—A turned period occurring after a syllable denotes that that syllable is under stress.

Except where the turned period is thus used, stress is laid on the last syllable bearing an accent mark.

For typographical convenience, capitals of vowels which bear an accent mark are indicated by placing a turned period before them as ·âkà-Ked·ē ; ·īra ; where ·â, ·ī, mean the capitals of â, ī.

When convenient, as in writing, the capitals themselves may be used surmounted by the proper accent mark.

Explanation of Plates XXIII to XXVI.

PLATE XXIII.

Fig. 1. Ngâtanga(da); Hooked pole for gathering fruit.
Fig. 2. Lâkà(da); Hoe used for digging up edible roots.
Fig. 3. Tôlbōd(da); Fish-arrow with iron-pointed head and barb, as commonly used.
Fig. 4. Tôlbōd l'ârtâm(da), *i.e., ancient* fish-arrow, headed with the serrated tail-bone of the sting-ray, as formerly used when iron was not obtainable.
Fig. 5. Ēla l'âkà lūpa (da), *i.e., plain* pig-arrow, having no foreshaft; it is more easily made, but is less effective than the *ēla* (*vide* Vol. vii, Plate xiv, fig. 5, where the remaining varieties of arrows are also represented).
Figs. 6 and 6*a*. Ijī-gōnga(da); *Pandanus* leaf head-dress.
Fig. 7. Châuga l'ōt chēta(da); Human skull } as carried by
Fig. 7*a*. Châuga l'âkà ēkib(da); Human jawbone } mourners.
Fig. 8. Tôgo chônga (da); *Pandanus* leaf bracelets } worn only by men and
Fig. 9. Tâ chônga(da); *Pandanus* leaf garters. } youths.
Fig. 10. Chô(da); Knives of bamboo and cane as used in former times.
Fig. 11. Kai(da); Bamboo tongs.
Fig. 12. Pô·tòkla(da); Bamboo netting needle.
Fig. 13. Armlet; 13*a*, necklet; and 13*b*, waistbelt as worn by members of the Jàr·awa tribe.
Fig. 14. Jōb(da); Basket } as used by the
Fig. 14*a*. Būj râmata(da); Basket-work cover for cooking-pot } Jàr·awa tribe.
Fig. 15. Pàr·ēpa(da); Sleeping mat as used by the Great Andaman tribes.
Fig. 15*a*. Pàr·ēpa(da); Sleeping mat with wooden pillow as used by the Little Andaman and other *Jàr·awa* tribes.

PLATE XXIV.

Dūe; Nicobarese outrigger canoe (Model of): with ornamental figure-head, *a*, (Kōi la Pū); topmast, (carrying pennant only), *b*; and outrigger pennant *c*; as used on festive occasions.

PLATE XXV.

Figs. 1, 1*a*. 1*b*. Karē·au. Specimens of charms kept in the huts of the natives of the central and southern islands to frighten away evil spirits, &c.

Fig. 2. Toddy drinking vessel.
Fig. 3. Toddy strainer.
Fig. 4. Kan-shait. A strip of the thorny stem of the rattan used as a grater for preparing the kernel of the Cocoa-nut and *Cycas Rumphii* for food.
Fig. 5. Danang. Bamboo guitar or lyre.
Fig. 6. Tanâp. Box (with lid) made of the spathe of the *Areca augusta* or *Nibong* palm; is in common use.

PLATE XXVI.

Fig. 1. Kemīlī. Fighting hat as used by the natives of th central and southern islands.
Fig. 2. Kahâ·wat. Fighting hat made out of the husk of a cocoa-nut, as worn by the natives of the northern islands.
Fig. 3. Fòin. Cross bow and arrow (*aṅh·chakâ fòin*) as used by the natives of the northern islands.
Fig. 4. Bel. Bow and arrow (*aṅh·chakâ bel*) as used by children at all the islands except Car Nicobar and the southern group.
Fig. 5. Hin-yūan. Wooden spear as used by the wild inland tribe (*Shòm Peṅ*) of Great Nicobar.
Fig. 6. Miâṅ mòm-âṅ·ya. *Two* pronged spear, used for picking up *bêche de mer*.
Fig. 7. Miâṅ lōe. [1]*Three* pronged spear, used for spearing fish by day, or by torchlight at night.
Fig. 8. Shaneṅ Kōpaton. Resembles the *Shaneṅ Yanô·ma* (*vide* Vol. vii. Plate xiv, fig. 10) and, like it, is used only as a weapon when visiting distant villages.
Fig. 9. Kan-shō·ka. Spear for harpooning turtles, ray-fish, sharks, and dugongs.
Fig. 10. Shanō·ang dai larōm. *Pandanus* leaf head-dress worn by young men and women, both married and single.
Fig. 11. Tī-nē·anga. Grating placed as a seat or platform in the bows of a canoe.

A collection of Andamanese bone necklaces was exhibited by Dr. Allen Thomson, who read the following paper on this subject:—

[1] For other varieties see vol. vii, pl. xv.

Description *of* Andamanese Bone Necklaces.

By Dr. Allen Thomson, F.R.S., V.P. Anthrop. Inst.

The use of necklaces and waist-belts made of human and other bones by the Andamanese, and the general nature of these as ornaments and memorials, are generally well known to all those who have visited or resided in the islands, and are referred to in most of the descriptions of the customs of their inhabitants; but I have nowhere found a detailed account of the materials of which the objects in question are composed, except it be partially in the descriptive labels affixed to the specimens presented by Mr. Man in General Pitt Rivers' Anthropological collection, as also in the interesting printed catalogue of its Andamanese and Nicobarese specimens.

The circumstance of my having obtained some years ago a number of the bone necklaces along with other objects illustrating the physical characters and customs of the Andamanese by their presentation through me to the Hunterian Museum of Glasgow University by my friend and former pupil Dr. James Reid, who has resided for a number of years at Port Blair, in the South Andaman Island, first called my attention to these necklaces; and I have been led to think that it might be of some use to endeavour to determine and to describe somewhat more in detail than has yet been done the osseous components of the necklaces and belts which I now exhibit to the Institute. Among these specimens, amounting in all to 48 in number, I am happy to be able to include, through the kindness of General Pitt Rivers and the authorities of the South Kensington Museum, a number of Mr. Man's specimens from that collection.

With one exception, that of a human lower jaw afterwards referred to, all the specimens are of a like kind, being formed of pieces of bone or other substituted material strung together on cord for suspension round the neck or other part of the body; one only being of such a size as to serve as a waist-belt. Of the whole number 28 are specimens sent to me in January, 1875, by Dr. Reid, and 20 belong to the Pitt Rivers collection, nearly a half of the last being from specimens recently brought to this country by Mr. Man.

It is to be observed, however, that all these objects are not constructed of bones; but a fourth of them are made up of other materials, such as slips of cane, palm-wood and so-called red coral, and they vary also according as they are simple or more or less adorned with various appendages consisting of small shells, most frequently strings of the tubes of a Dentalium. But in all these the form and arrangement are so obviously

similar to and in imitation of those which are constructed of bones, that the latter must be regarded as the fundamental or original form of the Andamanese necklace, and the others as substitutes for bones when these could not be procured. Indeed, in several instances, we find necklaces which are mainly formed of bones filled in or completed with one or more pieces of cane either in a regular or irregular manner. These spurious or non-osseous necklaces I have separated from those which are wholly or partially composed of bones. Among the latter I have also distinguished those which are obviously made of human bones from those in which the bones of animals have been used, and I have distributed the whole series, with some reference to this distinction and the nature of the bones, in a descriptive tabular form, with consecutive numbers, and under the following general divisions, viz:

I. Human bones; probably chiefly memorial.
 1st. Mostly determined.
 2nd. Fragments. Some undetermined; some may be of animals.

II. Bones of animals.
 1st. Metacarpals, Metatarsals, and Digitals.
 2nd. Vertebræ and Ribs.

III. Imitations in Wood, Coral (?), &c.

In the tabular description which follows, details will be given for each specimen, and at this place I will direct the attention of the Institute to the most prominent feature of the more remarkable specimens, and their signification and relation to the habits of the people.

The first ten specimens enumerated in the descriptive table are undoubtedly formed, chiefly or with very few exceptions, of human bones, and are probably of a memorial character, that is, containing bones which have belonged to deceased relatives or friends, and, according to the statement of Mr. Man and others, worn in remembrance of them, and sometimes also as charms against pains, sickness, and other evils.

I have placed first two specimens (Nos. 1 and 2) of the "finger bone" necklaces, as they seem to illustrate better than any others the general nature of these ornaments. The greater number of the bones in these two specimens are from the hands of adults, and among these the most favourite bones are those of the first finger joints, or proximal phalanges. Of these there are seven in No. 1, and five in No. 2. The other hand bones are metacarpal, chiefly the first or thumb one, and the fifth, probably on account of their size; and in both specimens these hand-bones are supplemented by others of a different kind,—in the case of No. 1, with four pieces of human rib, of nearly the same

length as the digital bones; and in No. 2, with four digital bones of a turtle. The difficulty of recovering all the more suitable bones from the remains of the dead bodies, a task which Mr. Man informs us falls to be performed by the women, seems in many instances to have led to the adoption of expedients for supplementing them by means of other bones, and even, as will appear afterwards, by the substitution of other materials.

No. 1 may be taken as a fair example of the average length of the necklace, and the number and size of its component pieces.

The third specimen I have introduced into the series as an illustration of the custom which the Andamanese share with some other savage nations of wearing suspended to their necks the lower jaw or skull of a deceased friend,—as, for example, the skull of a deceased husband by the widow.

In the jaw shown from Mr. Man's specimens the knotted band is of the dimensions suited to serve for suspension round the neck of the wearer, and there is besides a profusion of ornament appended, formed of strings, 5 to 7 inches in length, of broken or entire shell tubes of dentalium (perhaps *D. ontogonum*).

The custom of carrying about the dried skull prevails among some of the Australian tribes; but there it is generally reduced to the cranium alone by the removal of the facial part, and it is often employed to hold objects, or as a drinking vessel, uses which, according to Mr. Man's statement, the skull is never put to with the Andamanese.[1]

It would appear that among other tribes as well as the Andamanese, the lower jaw is also worn on the person. Of this we have an example among the inhabitants of Huon Gulf, New Guinea, in the lower jaw (Christy Collection, No. 9808), probably that of a woman, fitted to be worn as a bracelet with a worked band passing across between the condyles, and ornamented with suspended shell (*Cypraea*) and seed capsules.[2]

In the Christy Collection there is also another very interesting specimen of the same kind, brought from New Guinea by Professor Huxley, and stated to have been worn as a bracelet. This specimen is remarkable as having been that of an old person entirely toothless, but with the alveolar process of good breadth, and well covered over with smooth hard bone, indicating that during the life of the person it had still been in effective use. In this instance the arch of the jaw was closed by

[1] It is not my intention to consider here the various curious ways in which the skull is preserved in a more or less ornamented fashion by different nations, as in most instances of this kind the skull is not worn on the person of the living, but preserved in temples, houses, &c.

[2] For the opportunity of examining this and other specimens in the Christy Collection and British Museum, I am indebted to the kindness of Mr. Read, the Assistant Curator.

two clavicles lying different ways between the condyles and bound to them: and these clavicles appeared to be those of a female.

It may also be mentioned here that the lower jaw of a native dog (Christy Collection, No. 6947) is stated to be worn as a charm by the Australians of Cape York; while in the Admiralty Islands the painted skulls of turtles are hung up in the temples, and in the Louisiade Archipelago, the inhabitants of Brumer Island suspend round their necks a pair of the skulls with the bony part of the beaks of the wreathed toucan (Christy Coll.). Of this we have no similar examples among the Andamans.

The next specimens, Nos. 4, 5, 6, and 7 of the descriptive table, have especial interest as being almost certainly of a memorial character. The three first are all composed of bones or portions of bones which have belonged to children at or about the time of birth,—and which therefore are not completely ossified. No. 4 consists of several bones from the base of the child's skull, such as the basioccipital, the two exoccipitals, one petrosal, a basisphenoid, and probably a part of one alisphenoid, with a few less definite fragments, and seventeen nodules from the bodies of the vertebræ, all strung together in a certain order. In No. 5 there is one basioccipital bone of an infant similar to that in No. 4, and one left ischial bone; but all the remaining pieces are vertebral (42 in number) consisting of the half or ununited vertebral arches of one or other side, and eleven others which are nodules of the vertebral bodies. No. 6, again, is entirely composed of half vertebral arches from another child, apparently somewhat younger than those of Nos. 4 and 5. Of these half-arches there are 41.

No. 7 is also vertebral, but the pieces of bone are from an adult, and these seem all to consist of angular sections of the human vertebral bodies (cervical, dorsal, and lumbar) presenting at the two ends parts of the upper and lower articular surfaces of these vertebræ, and split surfaces along the sides where they are tied to the retaining cord.

The remaining three specimens of the first division, Nos. 8, 9, and 10, are composed of portions of ribs having the general appearance of those of men, and some of them in which the articular heads are present, undoubtedly human. And in these, as they must have been arbitrarily chosen, it may be right to notice that the number of the pieces varies from 10 to 13, and their length from about $1\frac{1}{2}$ to $2\frac{1}{4}$ inches. In No. 10, however, only seven of the pieces are formed of ribs, and these are combined with six irregularly shaped slips of other broken bones.

The nine specimens which are brought under the second section of the first division, Nos. 11 to 19, are perhaps of less interest than those previously referred to, as being formed of

broken fragments of bones in which it is difficult to determine exactly the source from which they have been derived. To the use of this form of component of the necklace the manufacturers have probably been reduced by the dearth of the more suitable entire bones. The shape of these pieces, made with the very imperfect tools of the Andamanese, is necessarily irregular and various, but they are all more or less elongated, and approach somewhat to the form of the pieces of rib. They are, however, frequently angular at the extremities. Most of them are formed of dense or compact bone, presenting the natural or outer surface of the bone on the remote side from the connecting cord, while the hollow or medullary side is next the cord. They are of such a form and thickness as to indicate their having been derived from such bones as the femur, humerus, or tibia. Others of the fragments seem to have been taken from smaller bones, such as the radius, ulna, or fibula, but all of them from the more dense shaft portion, though it would be difficult to determine their exact source, or whether all were really human.

Under the second division are brought those necklaces of which the bones are mainly if not wholly those of animals. In the first section are those composed chiefly of the bones of the fore or hind foot, and of these seven specimens, Nos. 20 to 26, six are principally or entirely from the turtle, and one only from a mammal. That specimen, No. 20, is of some interest from its consisting of the metacarpal and phalangeal bones of a hog,—an animal whose bones, according to the statement of Mr. Man, and others well acquainted with the Andamanese customs, are not used in the manufacture of the necklaces. There can be no doubt, however, that these bones, consisting of the metacarpal and some digitals, belong to an animal of the hog kind. They are from a young animal, and the epiphyses (distal) are absent; but it is impossible, from there being only one specimen, to say whether this example is to be regarded as exceptional or not.

Of the necklaces formed of turtles' digital bones, some, as Nos. 21, 23, and 25, are entirely of this nature. Others, as Nos. 22 and 24, are turtles' digital bones supplemented by other bones, such as caudal vertebræ of a mammal or split fragments, and one, No. 26, containing eleven turtles' digital bones, is supplemented with eight pieces of cane placed symmetrically four on each side. Two also of this set, Nos. 23 and 24, are ornamented with strings of dentalium shells, while the rest are entirely simple or without any such addition.

I have not been able to find that any other tribes of people have the custom of wearing bone necklaces, and especially those formed of digital bones in the same manner as the Andamanese.

The nearest approach to such a custom is that which is indicated by a specimen in the British Museum, dating from 1821, which is that of strings of digital bones, probably of the Polar bear, said to be worn as hair ornaments by the Esquimaux of Savage Island. The same people also wear small models of birds made of bone and strung together. The North American Indians wear strings of bears' claws having the last phalanges in them. And in the Christy Collection there is a remarkable specimen, No. 6127, consisting of a string of six astragalus bones with three intermediate pieces of hoof, and a long strip of polished bone drilled with six circular depressions, which is said to be used among the Basutos for divination, and is described in the Journal of the Anthropological Institute by Dr. or Mr. Sanderson.

There is also in the same collection a long string (4 feet 3 inches) of the cylindrical parts of birds' bones (probably radius and ulna) about 2 inches long, worn as a necklace at the Friendly Islands.

In the second section of this Division are brought together eight examples of necklaces formed mainly of the vertebræ and ribs of animals, or portions of them (Nos. 27 to 34). Several of these were stated to be made of bones from the wild cat or *Paradoxurus Andamanensis;* but they appear to me to be for the most part of a larger size than the corresponding bones of any skeleton of that animal which I have seen, and to approach more nearly, indeed to quite equal, the size of those of a fox or moderately sized dog. The caudal vertebræ are frequently employed in the construction of these necklaces, and from the number of bones of nearly a like size in one specimen it seems probable that they have been obtained from several animals. The portions of ribs are sometimes the vertebral part with the articular surfaces entire, and at other times the sternal part. And in two specimens, Nos. 32 and 33, there are several metacarpal and metatarsal bones of *Paradoxurus,* or similar animal, combined in the same necklace with the ribs.

No. 30 stands alone as an example of a necklace formed of the caudal vertebræ of the iguana. From its shortness (12 inches) it may have been intended to be worn by a young person.

We are not altogether without parallel examples among other tribes of the employment of animal vertebræ for personal decoration; as I find in the British Museum two examples of necklaces or some such ornament formed of animals' vertebræ. One of these is from New Caledonia, and consists of about 80 serpents' vertebræ, each nearly half an inch long, and strung together through the spinal canal.

The other consists of a string of the biconically hollowed discs which form the bodies of sharks' vertebræ, artificially perforated, and about 63 in number, brought from the Solomon Islands.

In the third division of the enumeration are placed those specimens of Andamanese necklaces, which being formed of different material from the bone ones, may be regarded as imitations of or substitutes for them. They are of two kinds, viz., of wood, which is either cane or palm, and of a kind of coral; but as might be supposed from their imitative nature, they are on the whole very uniform in their construction. This remark applies especially to those formed of cane and palm wood, and they require very little remark. To secure the hollow form of the pieces on one side with the due curvature and thickness, young plants seem to be selected for the manufacture of these pieces, and occasionally two slips are placed together when greater thickness was required. Most of these wood necklaces are simple; but in two examples, Nos. 41 and 42, four shells (*Neritina gagates?*) are appended by knotted cords; and in another instance, No. 45, a few strings of Dentalium have been added.

Of the necklaces formed of pieces of so-called red coral, in which numerous small pieces of the material are strung together on the same general plan as in the bone necklaces previously described, two at least, Nos. 46 and 48 (and probably also the remaining one No. 47), consists of portions of the stalks of a jointed Gorgonia, of which I have not ascertained the specific name, but which is very similar to some specimens in the British Museum. One of these is under the name of orange coloured branched coral from the Hainan coast, 1868. With this the structure, as seen both on the surface and in broken sections of the necklace, pieces exactly corresponds, and they are altogether different from the red coral (*Corallium rubrum*) of the Mediterranean. In the smaller specimen No. 46, parts of the joints are retained, while in No. 48 the pieces of which are taken from a considerably thicker stem, only the intermediate portions are present. It is curious thus to find portions of a natural object in itself not unlike strung vertebræ taken to imitate a collection of such vertebræ.

There appear to be some other tribes of people besides the Andamanese who make use of strings of portions of cane as necklaces, but all those I have seen have been formed of complete tubes loosely strung by a cord passed through the canal, and not fragments tied on the connecting cord after the Andamanese fashion.

In the foregoing fragmentary notice of necklaces or other

such ornaments formed of bone among other tribes than the Andamanese, I might, if time had permitted it, have made some reference to the employment of teeth for a similar purpose; but however interesting this might be, and closely allied to the subject of the present communication, I believe it would open up much too extensive a field of inquiry. All ethnological museums, indeed, present numerous examples of the most various and elaborate applications of teeth of all kinds of animals to the adornment of the person as well as to more useful purposes. The only remark which I shall make in regard to this is that in all the examples of necklaces made of strings of teeth which have come under my notice, with one single exception, the teeth are invariably perforated for the passage of the connecting cord, generally near the end of the root, and are not therefore tied on to a cord as the Andaman bones are. The exception to which I refer is that of a string or necklace made of the lower incisor teeth of a large ruminant from Australia contained in the collection of the British Museum.

Without a more intimate knowledge of the customs of the Andamanese people and the nature of the products of their country than I possess I could not venture upon any detailed account of the mode of construction of their necklaces. I must limit myself therefore to some general remarks on this part of the subject. As already stated there is a remarkable simplicity and uniformity in the plan upon which the necklaces are constructed, and a still more marked absence of any artistic skill or refinement, both of execution and design. In no case is any perforation of the material attempted; but the shape of the pieces or joints, whether natural or artificially produced, is relied on for securing the fastening by means of the finer string which is coiled round them and the connecting cord. Thus the bone pieces which are elongated and somewhat thinner, or which at least do not bulge in the middle, are best suited for the purpose of fastening. Those objects also which present more or less of a convexity on one side, and a hollow on the other are well adapted for the arrangement, as we have seen in the half cylindrical form of the finger bones, in the portions of ribs and in the caudal vertebræ.

With regard to other bones, such as those of the child's skull and vertebral bodies, which are not naturally adapted by their shape to be fastened to the connecting cord, we can only suppose that the great desire to preserve them as memorials according to a traditional custom has led those who collected them to disregard the difficulties opposed by their form.

In employing other materials than bone for the construction of the necklaces in imitation of those of bone, it is obvious

that objects would be chosen which, while they could be readily procured, had a general resemblance to the more approved forms, or could be easily fashioned into them. Hence the choice of the slips of the hollow cylinders of bamboo cane or of young palms and of the joints of the Gorgonia before mentioned.

In the binding of the bone pieces, &c., upon the connecting cord, there is generally interposed longitudinally between them slips of a bright yellow-coloured straw, which gives some variety of colouring to the specimens which are freed from the red clay with which most of them are smeared; but the use of such attempts at variation of colour it is difficult to understand when all differences of colour are completely obscured by the red clay or oxide of iron.

The small string used for binding the separate pieces to the connecting cord is of very uniform appearance and thickness, and does not differ greatly from the small twine of this country. The connecting cord varies considerably both in length and thickness as well as in the material of which it is composed. In most instances a portion of the cord of from six to eight inches in length is left free at each end beyond the bone pieces for the purpose of tying, and the ends are generally knotted. In other instances, and especially in those to which shells are appended, the ends are fixed together close to the bones, and some length is left beyond the fastening in a subdivided form for the attachment of shells or other objects. The cord is in general made of twisted vegetable fibre from leaves or bark, but occasionally for want of the usual material various substances are employed, among which even woven cotton cloth may be found twisted into the form of cords. Sometimes also British cord seems to be employed.

With respect to the dimensions of the necklaces and their component parts, as well as the numbers of the latter, while there are occasional variations, it will be seen from the Descriptive Table that there is on the whole great uniformity.

The whole length of the necklaces within the limits of the bony parts comes in 42 out of 48 described between 17 and 23 inches, giving thus a variation of 6 inches, corresponding to a difference of 2 inches in the diameter of the circles formed by them taken as from $5\frac{3}{8}$ to $7\frac{3}{8}$ inches.

The length of the separate pieces of bone or other materials is also on the whole very uniform. This might have been expected with the imitations in cane and the broken pieces of bone, the greater number of which are from $1\frac{1}{4}$ to 2 inches or occasionally $2\frac{1}{4}$ inches. In one case only where a small fibula was used has it reached $2\frac{1}{2}$ inches. And the size of the natural bones chosen does not in the main depart greatly from those now stated. But where vertebræ of small animals are employed, and in the

peculiar instances of the vertebral pieces of the child, very great differences are observed; and the same remark applies to the so-called coral imitations of these smaller bones.

It does not appear that there is any regularity in the number of the pieces, nor that any importance can be attached to their variations. Nearly three-fourths of the whole necklaces described have a number of pieces varying from 11 to 16. The smallest number in any case is 9. There is only one having a number between 20 and 29 pieces, viz., one having 23 pieces, there are six having between 29 and 44 pieces, and two only above the latter number, viz., one having 55 and another 80 pieces,—a circumstance which contrasts remarkably with what is found in the greater number of teeth necklaces, and still more in those composed of shells, ostrich shells, and manufactured materials in which the number of pieces is usually very great.

It may be further mentioned that the strings of bones I have described under the general title of necklaces are sometimes also worn as chaplets or head ornaments, and that some, such as No. 19, are adapted by their size for waist belts, and are actually worn as such: but these last, or ornamental girdles, are to be distinguished from the more common girdles or waist-bands, made of dried leaves, bound together, and fitted with a bunch of cords or "bustle" hanging down from them behind, which constitute an essential part of the "dress or clothes" of the Andaman female (Dobson).

The difference among the necklaces and belts in respect of appended ornaments is also worthy of notice. In Nos. 3, 19, 23, and 24, brought by Mr. Man, there is a large quantity of strings of Dentalium shells; while in Nos. 41 and 42, obtained from Dr. Reid, four shells of Neritina are appended, and in one only of Dr. Reid's specimens are a few strings of the Dentalium tubes added.

It seems probable that these and other differences may be connected with a variation of the tribes to whom the objects have belonged, with regard to which differences, however, we are as yet imperfectly informed, but may expect fuller and more minute details from Mr. Man upon his return to the East. With respect to these necklaces it is also to be remarked that, as in the case of most objects of a like kind, they may now be manufactured by the natives for the European collector.

In conclusion, I have to return to Mr. Man in particular, and to Dr. Reid, Dr. Dobson, General Pitt Rivers, and others, my best thanks for valuable assistance and information connected with the objects shown to the Institute.

SHORT DESCRIPTION OF FORTY-EIGHT BONE AND IMITATION NECKLACES WORN BY THE ANDAMANESE.

I.—HUMAN BONES. PROBABLY MEMORIAL.

1*st. Mostly Determined.*

Running Number of Specimen.	——	Museum Reference.	Number of pieces in each Necklace.	Length of Necklace within the tie.	Size of the pieces in each Necklace.	Nature of the cord on which the Bones, &c., are strung.
1	Ten adult human metarcarpal and digital bones, with four pieces of rib, also human (seven first digital phalanges)	R. 1	14	21 in.	¼ to 1½ and 1½ to 1¾ in.	Strong cord made of twisted leaf or bark.
2	Seven adult human metacarpal and digital, together with four digital bones of the turtle	P.R. 46	11	17	1½ to 2½	
3	Adult lower jaw arranged for suspension by means of a knotted band, and ornamented with a profusion of strings of Dentalium shells	M. 105	1	band 22	4 in. across condyles.	Netted cord.
4	Partially ossified bones from the base of the skull (6), and bodies of the vertebræ (17), and others doubtful (6), from a child at birth	R. 2	29	17	¾ to 1	Cord of twisted vegetable fibre.
5	Half vertebral arches of a child at or about time of birth (42). One bone from the base of the skull of the same, and one ischium, with nodules from the bodies of the vertebræ (11)	P.R. 40	55	19	½ to ¾	
6	Entirely composed of half vertebral arches of a child at birth, or near it. Apparently younger than No. 5	P.R. 39	41	18	¾ to ¾	
7	Split angular pieces of different adult human vertebral bodies, preserving upper and lower articular surfaces	R. 3	23	20½	¼ to 1 long and ¼ to ¾ broad	Strong twisted cord with thin knotted cords attached.
8	Short pieces of human ribs, two with articular heads, and chiefly middle and lower ribs	R. 4	10	19	1½ to 2½	
9	Pieces of human ribs, one a lower with articular head	R. 5	11	17½	1¾ to 1¾	Thin cord.
10	Seven pieces of human ribs, one with articular head, and six irregular narrow pieces of broken bone	R. 6	13	22½	1½ to 2	Thin cords twisted together.

I.—HUMAN BONES. PROBABLY MEMORIAL—(*continued*).

2nd. Fragments of Human Bones, some determined.

Others not so ; may be of Animals.

Running Number of Specimen.	———	Museum Reference.	Number of pieces in each Necklace.	Length of Necklace within the tie.	Size of the pieces in each Necklace.	Nature of the cord on which the Bones, &c., are strung.
11	Large angular pieces of compact and thick bone shafts, such as those of femur, tibia, &c.	M. 102*a*	9	17½ in.	1½ to 2⅝ in.	Moderately thick cord.
12	The same with many smaller pieces	R. 7	10	18½	1⅝ to 2½	Thick cord.
13	The same, the size varying much...	R. 8	11	20	1½ to 2½	
14	The same, also varying much in length and breadth	R. 9	12	18½	{ length ⅜ to 2⅜ bh. ⅛ to ⅝ }	Thin cord.
15	Angular broken bones with some pieces of ribs	M. 102*b*	15	21½	1 to 1½	Thin cord.
16	Angular pieces of broken bones; undetermined	R. 10	15	21	⅝ to 2	Cords made of cotton-wove cloth.
17	The same	R. 11	13	18½	1½ to 1½	Thick cord.
18	The same, narrow and long; all pointed at the ends...	R. 12	11	20	⅜ to 2⅜	Thin cord.
19	A waistbelt of large pieces of broken compact bones, profusely ornamented with strings of Dentalium shells	M. 102	29	30 + 10 overlapping = 40	⅛ to 2	Strong cord.

II.—BONES OF ANIMALS.

1*st*. *Metacarpals or Metatarsals and Digitals.*

Running Number of Specimen.	———	Museum Reference.	Number of pieces.	Whole length within the tie, or in the extent of the bones.	Size of the pieces composing the Necklace.	Nature of the cord on which the Bones, &c., are strung.
20	Metacarpals and digitals, &c., of young pig without the distal epiphyses	R. 13	15	19½ in.	¼ to 1¼ in.	
21	Metacarpals and digitals of the turtle, &c.	M. 124	13	22	1½ to 2½	
22	Ditto, with two others, probably caudal vertebræ of a carnivore, and one piece of cane	R. 14	18	21¾	¾ to 1½	
23	(Yă-dĭ-tă-da) chiefly digitals of turtle, ornamented with Dentalium shells	P.R. 38	15	21½	1½ to 1¾	Cord made of wove cotton cloth, twisted.
24	Four digitals of turtle (Châuga-tă-da) with eight irregular pieces of split bone, ornamented with Dentalium strings	P.R. 46 bis.	12	18	1¾ to 2	English-looking cord.
25	(Yă-dĭ-tă-da) all turtles digital, simple	P.R. 38 bis.	17	20	¼ to 2½	English-looking cord.
26	Eleven digitals of turtle, short, probably of foot, with eight pieces of cane, four on each side symmetrically	R. 15	19	22	¾ to 1¼	

II.—BONES OF ANIMALS—(*continued*).

2nd. Vertebræ and Ribs of Animals.

Running Number of Specimen.	———	Museum Reference.	Number of pieces.	Whole length within the tie, or in the extent of the Bones.	Size of the pieces composing the Necklace.	Nature of the cord on which the Bones, &c., are strung.
27	Neural arches, whole or parts, of an animal the size of a fox or small dog; larger than the Paradoxurus	R. 16	30	20½ in.	½ to 1 in.	
28	Caudal vertebræ nearly of equal size, probably of several animals; larger than, but possibly may be, Paradoxurus	R. 17	19	18	¾ to 1	
29	Ten or eleven caudal vertebræ, perhaps Paradoxurus. Also five or six sacral vertebræ, and three irregular pieces, perhaps atlas and other vertebræ	M. 126	20	15½	½ to ¾	Cord formed of twisted leaf, &c.
30	(Dūkū-tā-da) caudal vertebræ of iguana...	P.R. 40 bis.	18	12	½ to ¾	
31	Four ribs of a carnivorous animal, rather large for Paradoxurus; Also nine caudal vertebræ of same animal; upper part of a fibula, and two metatarsals	M. 125	16	21	¾ to 2½	Twisted leaf or bark.
32	(Baiʻan-tā-da) ten ribs of carnivorous animal like the last (Paradoxurus?) five of the ribs with articular heads, and four with sternal or cartilageous ends; also two metatarsal bones	P.R. 39	12	23	1½ and 2 to 2½	Cord very firm and strong o twisted leaf or vegetable fibre.
33	Ribs like the foregoing, apparently too large for Paradoxurus. Seven have articular heads; also a metacarpal or metatarsal, a fibula, and three irregular fragments	R. 18	11	19½	1½ to 2½	
34	Ribs, broken pieces without articular heads. Too large for Paradoxurus, but too small for human	R. 19	12	20	1½ to 1¾	

III.—IMITATIONS IN WOOD, CORAL (?), &c.

Running Number of Specimen.	——	Museum Reference.	Number of pieces in each.	Length of necklace with the tie of the cord.	Dimensions (length) of the pieces.	Nature of the cord on which the Bones, &c., are strung.
35	Pieces of cane, of uniform size, thick but single	M. 123	12	20 in.	1½ to 1¾ in.	Twisted leaf.
36	(Pèr-tâ-da) the same thinner; yellow straw-like substance tied in[1]	P.R. 41	11	17½	1½ to 1¾	English-looking cord.
37	Ditto very uniform	R. 20	12	19	nearly 1½	Thick cord.
38	Ditto ditto	R. 21	14	18½	1½	Thick twisted cord.
39	Ditto ditto	R. 22	16	23	1½ to 1½	Thick twisted cord.
40	Ditto	R. 23	11	16	1½ to 1¾	
41	Ditto with four shells (Neritina gagates ?) attached, each one to a hanging cord from the united main cord	R. 24	15	20	1½ to 1¾	Thin cord.
42	Ditto, with three shells in the same way (a fourth lost)	R. 25	15	20½	1½ to 1½	
43	Slips of palm wood similar to those of cane; a little thicker ...	R. 26	16	22½	1½ to 1½	Cord made of twisted cotton cloth.
44	Ditto ditto very uniform in size and shape; thin and single	R. 27	14	20	nearly 1½	
45	Ditto ditto each double; a few strings of Dentalium affixed	R. 28	13	21½	1½ to 1¾	
46	(Bewa-tâ-da) long string of small pieces of so-called red coral, apparently joints of a branched and jointed Gorgonia	P.R. 43	80	41	⅜ to ½	
47	A shorter string of the same Gorgonia, or one nearly allied but with a singular resemblance to caudal vertebræ	P.R. 43 bis	44	17	1/16 to ⅜	Thin twisted bark or leaf.
48	Thicker pieces than in the last, with the same internal and superficial structure, but not showing the joints, as if they were the pieces between them	M. 127	38	22½	⅜ to ⅝	Thick rope-like cord,

[1] I am informed by Mr. Man that this substance is the yellow skin of an Orchid root, which is rather scarce and much esteemed by the Andamanese as a means of ornamenting their waistbelts, necklaces, &c.

Mr. PARK HARRISON exhibited a slate tablet covered with incised figures. It was found in 1879, at Towyn, on the coast of Merionethshire, under about 3 feet of sand. Mr. Harrison thought that the objects intended to be represented were principally axes and urns. But there were other figures, resembling celts, a shield, a suiste, a tunic, a casque, and some objects with handles that might be baskets. If these identifications were correct, the objects were all such as might have been interred with a chief, and, if so, the engraving would be a remarkable instance of the survival in a changed shape of the old custom of burying arms and domestic utensils for use in another state.[1]

JUNE 14TH, 1881.

Major-General PITT RIVERS, F.R.S., *President, in the Chair.*

The Minutes of the last ordinary meeting were read and confirmed.

The following list of presents was read, and the thanks of the meeting voted to the respective donors :—

FOR THE LIBRARY.

From the AUTHOR.—Index to Papers on Anthropology published by the Smithsonian Institution, 1847–1878. By George H. Boehmer.
—— Australian Aborigines. By James Dawson.
From the MUSEUM.—Archivos do Museu Nacional do Rio de Janeiro, Vol. III, Nos. 3, 4.
From the SOCIETY.—Transactions of the Literary and Historical Society of Quebec, 1880, 1881.
—— Journal of the Society of Arts, Nos. 1488–90.
—— Proceedings of the Royal Geographical Society, June, 1881.
—— Proceedings of the Royal Society, No. 212.
—— Journal of the Asiatic Society of Bengal. Vol. L, Parts 1 and 2, No. 1.
—— Boletim da Sociedade de Geographia de Lisboa, No. 4, 2ª Serie.
—— Mittheilungen der Anthropologischen Gesellschaft in Wien. Band X. Nos. 10–12.
From the EDITOR.—Revue Scientifique, Tom. XXVII, Nos. 22–24.
—— "Nature," Nos. 604–606.

[1] A description of the figures, with an autotype, &c., has since been published by Quaritch.

From the EDITOR.—Revue Internationale, No. 5.
—— The Scientific Roll, No. 3.
—— Correspondenz-Blatt, June, 1881.
—— Matériaux pour l'histoire de l'homme, Tom. XII, liv. 5.

Major-General PITT RIVERS read a paper "On the Discovery of Flint Implements in the gravel of the Nile Valley, near Thebes." A discussion ensued, in which Mr. J. Campbell, Mr. J. Evans, Professor Boyd Dawkins, Mr. Rudler, Professor Flower, and Dr. H. Woodward took part, and the author replied.

Mr. ALFRED TYLOR read a paper "On the Human Fossil at Nice." In the discussion that ensued, Mr. J. Evans, Mr. Bouverie-Pusey, Professor Boyd Dawkins, Mr. Keane, and Mr. E. B. Tylor took part, and the author replied.

Mr. EVERARD F. IM THURN read a paper "On some Stone Implements from British Guiana," upon which Mr. E. B. Tylor, Mr. J. Evans, and the President made some remarks.

Mr. GERARD A. KINAHAN read a paper "On Sepulchral Remains at Rathdown, co. Wicklow."

Mr. J. H. MADGE read some notes "On some Excavations made in Tumuli, near Copiapó, Chili."

Mr. J. PARK HARRISON exhibited some Danish and French photographs.

The publication of the foregoing papers is postponed until the necessary illustrations can be prepared.

JUNE 28TH, 1881.

[*A Meeting held at No. 4, Grosvenor-Gardens, S.W., by invitation of the President and Mrs. Pitt Rivers.*]

Major-General PITT RIVERS, F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—Genesis I, II. By A. R. Grote.
—— La Biología en la Legislacion. By Dr. D. J. Valenti y Vivó.
—— Die Nationalökonomische Bedeutung der Afrikaforschung. By Dr. Emil Holub.

From the Secretary of the Aborigines' Protection Society.—The Basuto War.
—— The Native Policy of the Dutch Boers.
From Magyar Tudomanyos Akademia.—Almanach, 1881.
—— Értesitö (Akadémiai) 1879–7.8. (Bulletin acad.) 1880–1-8.
—— Evkönyvek (Annales) XVI, 6.
—— Ertekezések a társad. tudományok köréböl. V, 9; VI, 1–5.
—— —— a történelmi —— VIII, 10; IX, 1–3.
—— —— a mathem. —— VII, 3, 6–18.
—— —— a terméozet —— IX, 20–25; X, 1–18.
—— Liter. Berichte aus Ungarn, IV, 1–4.
—— Ungar. Revue, 1880, 1–4.
—— Monum. Archæol. IV, 2.
—— Pesty, Eltünt régi vármegyék, I, II.
—— Torma, Repertorium.
—— Pesty, Szörényi bánság, 1–3.
From the Royal Danish Academy of Sciences.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1881, Nos. 1–3.
From the Society.—Journal of the Society of Arts, Nos. 1491, 1492.
—— Transactions of the Society of Biblical Archæology, Vol. VII, Part 2.
—— Journal of the Asiatic Society of Bengal, extra number to Part 1, 1880.
—— Proceedings of the Literary and Philosophical Society of Liverpool, Vols. XXXIII, XXXIV.
From the Institution.—Journal of the Royal United Service Institution, No. 110.
From the Editor.—"Nature," Nos. 607, 608.
—— Revue Scientifique, Tom. XXVII, Nos. 25, 26.
—— Revue Internationale des Sciences biologiques, No. 6
—— Education, Vol. I, No. 4.

The election of R. Meldola, Esq., F.R.A.S., F.C.S., was announced.

The President made the following remarks upon the death of Professor Rolleston:—

I think we ought not to commence the proceedings of this evening without some allusion to the great loss which this Society has sustained since our last meeting by the death of Professor Rolleston.

Anthropology, as most of the members are aware, was his chief study during the latter years of his life. His communications to this Society were frequent, and always valuable, and he often regretted that he had not more time to devote to it.

Amongst the more important papers which he read before the Institute, and which have been published in our Journal during

the last year or two, are the following: "On the Men of the Long Barrow Period," "On Excavations at Sigwell," and "On Human Remains at Cissbury," besides the part which he frequently took in our discussions, record of which has been published in our Journal, not to mention the assistance which he freely rendered to brother anthropologists whenever it was asked.

To him we are indebted for the only scientific description which exists of crania of the stone age in this country, those of Cissbury and of the Long Barrows. Although his early training made physical anthropology his chief study, Professor Rolleston was an anthropologist all round; in archæology and ethnology he took a deep interest and an active part. Archæologists were in the habit of submitting to him for identification animal remains found in excavations, where the date or place in sequence could be fixed, and from these he was gradually accumulating a store of information about the changes and distribution of breeds in pre-historic times, which, had he lived, would have led to important results.

But apart from the great services which he rendered to science, and anthropology in particular, those who knew him will remember him chiefly for his fine chivalrous character, his ready wit, his earnest love of truth, and his straightforward method of dealing with the affairs of life. Nor was there ever a man more ready at all times to do justice to others. A proper notice of him will doubtless appear in our Journal, but, in the meantime, I think I may safely say that in no Society has he left behind him a larger number of friends than in the Anthropological Institute.

The Right Hon. Sir H. BARTLE FRERE then read the following paper:—

ON *the* LAWS *affecting the* RELATIONS *between* CIVILIZED *and* SAVAGE LIFE, *as bearing on the dealings of* COLONISTS *with* ABORIGINES. By the Right Hon. Sir H. BARTLE FRERE, Bart., G.C.B., G.C.S.I., F.R.S., &c.

IN inquiring what are the permanent laws affecting the relations between civilized and savage life as bearing on the dealings of colonists with aborigines, the first question is that of *continued existence* of the uncivilized race. Is it possible for an uncivilized race to continue to exist as uncivilized, in the presence or immediate neighbourhood of a civilized race, equal or superior in numbers?

If they can, under what conditions and with what modifications is such continued existence possible or probable?

The possibility of such continued existence has been denied,

and with very practical results, as arguments for slavery and slave trade in the Southern States of the American Union—in East and South Africa and Brazil; and the examples of the Carib inhabitants of the West Indies—the North American Indians—and the Maories, have been adduced as recent proofs of the impossibility.

Let us look at the historical evidence on the subject.

In India it is clear that from the earliest immigrations of the Aryan races up to the present time, the civilized immigrants have always been in contact with uncivilized and more aboriginal races.

We find clear evidence of such contact, and of the warfare to which it led, in the earliest poetical legends of the contests between the gods and demi-gods of Hindu mythology and the demons and spirits of mountain and forest—whom it was the office of the heaven-born race to conquer or destroy. We see the battles and other events of the contests depicted in the earliest efforts of Hindu sculpture and paintings, and we find the contest still going on under the native dynasties which immediately preceded the British dominion in India.

And what has been the result?

The civilized Aryan immigrants have everywhere dispossessed their more aboriginal and less civilized predecessors of the lordship of the soil in the open and plain country, not always of the ownership and right of occupation as cultivators of the soil, but almost invariably of something more than the highest rights of sovereignty.

It is very rare to find in the plain open country of India any petty chief of any aboriginal race (I know but of one in the Deccan, the Berud chief of Serapoor), and there are no *great* chiefs or sovereigns of such races, though the oldest and most powerful of Rajput sovereigns cannot be formally and securely seated on his ancestral throne till the Bhil Headman has marked the Maharaja's forehead with blood drawn from the Bhil's own arm. Nor in old times could a Rajput or Maharatta fortress be built with any certainty in popular estimation, of permanence or safety, till the Headman of the Bhil or other aboriginal race—or his child, or some equivalent victim—had been buried under the foundation of a keep or corner tower.

These are intelligible indications of the popular belief that without the aboriginal agency the safety of the dynasty or of the edifice set up by the intruder cannot be assured.

As a general rule, in the open country the uncivilized aborigines, when subdued, were incorporated into the community organised by the intruding race, and were settled on the land, sometimes as cultivating serfs—sometimes and more frequently as

village servants—hewers of wood, and drawers of water—as Helots charged to clear away refuse and dead carcasses, to skin animals, and to undertake, with all its defilements, the preparation and manufacture of leather and of leathern articles of dress or use; and to perform other services which would defile their Aryan superiors. They are found in almost every village of the open country, as an essential part of the village organisation—but always as outcasts—living apart from the other villagers and generally outside the village area, forbidden to touch the purer races, who could not, however, live without their help, in their present condition of civilization.

There are often clear traces of successive conquests of separate races more aboriginal than the Aryan. In large village communities in the Deccan, for instance, the outcast races are never on one uniform level of inferiority. There are grades of outcasts as well as of the "twice born," and one grade may not live, or eat with, still less intermarry with the others—the caste which removes and skins and buries the dead ox, may not intermarry with that which twists the skin into well-ropes, or makes the skin into leather, or the leather into shoes. There is much to justify the conjecture that each caste marks a separate conquest of some aboriginal tribe, each tribe having had its separate work assigned to it in the organisation of the village community.

This description applies only to the plain and open country. In the mountain ranges and forests we still find aboriginal races in sole occupation of large tracts from which the immigrant Aryans have never been able to drive them: Gonds, Koles, and Sonthals, Warlis, Bhils, and Naikras, Katkurris, Kulis, Dublas, and Ramoosis (Baruds) are examples of tribes apparently more aboriginal than Aryans, who have succeeded in maintaining a tribal, and almost a national existence in the presence of the Hindu invaders, and who still retain in their customs, beliefs, and language, and often in their physical characteristics, unmistakeable traces of non-Aryan and probably pre-Aryan origin.

How did the Aryan contact, either in the way of incorporation in a village community, or by confining these aboriginal races to mountains, forests, &c., affect the social life and physical characteristics of the aborigines?

In the village communities it imparted a certain tinge of Aryan civilization to the aboriginal Helots. They generally lost their own language and acquired that of their conquerors. They gave up their nomadic habits, and settled down to live continuously in the same locality, and to cultivate the same fields. They acquired proficiency in some distinctive industries which were necessary to the village community, *e.g.*, as tanners, leather workers, shoemakers, &c.

They accommodated their own religious beliefs, more or less to fit into the dominant religion of their Aryan conquerors. The Tiger God, Wagya, became an incarnation of the orthodox Siva. Murri, the goddess of small pox, or cholera, was localised as a manifestation of the Brahminical Bowani or Kali, and generally the fetishism and demon worship of the aborigines was fitted into the nomenclature of the more philosophical Brahminical pantheon.

Physically some change took place, partly owing to changes in the conditions of life, such as the use of clothing, however scanty, and the habit of living in houses. All the Helot races, in the Deccan, for instance, are darker than the Aryan Hindus, but seldom so dark as the unchanged aboriginal races, and sometimes clear traces are to be seen among the Helots of crisped hair, rarely if ever seen in a pure Aryan race.

But there was little if any visible change from admixture of races, owing to the strictness of rules of caste. Intermarriage between a pure Aryan and a Helot was peremptorily and effectually forbidden. Concubinage was restricted within the narrowest limits, and as a domestic institution was rendered, by severe caste penalties, nearly impossible to any but men of high rank and great influence, and thus it happens that when all the Helot castes and sub-divisions of a large Deccan village are assembled, it is easy to recognise a general difference in colour and physical characteristics from one another, as well as from the various Aryan castes living within the same village.

In some cases, from various reasons, the changes caused in aboriginal tribes by contact with the Aryan races are less marked than in others. Thus the village Bhils and Ramoosis, and Mangs of the Deccan are less fixed to settled habitations than other Helot castes or races living side by side with them in the same villages. They more readily revert to nomadic life; and if it is reported in the Deccan that the Mangs or Ramoosis have left their houses in the little hamlets of Helots outside the village walls, and are living in temporary booths in the distant fields and jungle, the experienced Brahmin Administrator will look out for disturbances, organised gang robberies, preluding insurrection. He will say, "It is always the way with these wild people! They are but evil spirits half tamed, or wild beasts, and will return to their lawless ways whenever the hand of Government is slackened."

There are scattered among the Aryan populations of the open plain country a few aboriginal tribes who have never been settled down in fixed habitations, and have not lost all traces of their aboriginal tongue. Such, for instance, are the Wuddars, who under various names are found as nomad quarrymen and

stonemasons throughout Central India, Rajputana, and the Deccan.

They are great proficients in their own crafts, but retain their own dialect, apparently of Dravidian origin, and a very curious communistic organisation, settling all matter of private as well as public import, from the movements of the tribe down to the marriages of the young men and maidens, and the division of wages, in full assembly of all adult males, where all except the parties directly interested may speak and vote, and from whose decisions no appeal is allowed to any other authority or tribunal.

They rarely and unwillingly accept wages as day labourers, and prefer taking task work or contracts to dig out a tank of a given acre and depth, to hew and carry stones of a given size and number, to build given lengths of wall of stone or earth, and they never fail to execute fairly a bargain so made. The proceeds are then divided, in full assembly, the weak and sick, the widows and orphans, all receiving their fair share of the gross earnings, the share being apportioned according to the opinion entertained by the general assembly of the deserts of the recipients or of their former bread-winners as contributors in times past to the general earnings of the community.

Such are a few of the effects on the aboriginal races of contact with Aryan civilization in the open country, where the aborigines have been effectually subdued and incorporated with their conquerors. In the hills and forests and elsewhere, wherever the aborigines have maintained a separate national existence, the effects of Aryan contact are less visible. Sometimes, as in Assam, the Hinduizing process has gone on gradually among the aboriginal tribes for generations past, and up to our own time; but in many cases there has been little visible change or improvement in civilization for centuries past, till the European Aryan with his roads and railroads, his uniform codes, and his centralised administration broke into the aboriginal reserve of Warlis and Bhils, of Sonthals, or Gonds, or Koles—and in half a generation effected more change than Hindu Rajas or Moslem Nawabs had effected for centuries before him. But space does not admit of more than a passing notice of such results.

It is clear from the written records, and still clearer from the sculptures and paintings of ancient Assyria and Egypt, that the highly civilized people of those countries were from the earliest ages in contact, and generally in conflict, with their uncivilized neighbours. That extermination of the uncivilized race, or at least of the whole adult male population, and the absorption of the women and children by the conquering race, so as practically to extinguish the conquered tribe, was a common result, is

also clear. But this result did not invariably follow. It appears to have been a usual policy of the Chaldeans, Assyrians, and Babylonians, as well as the Medes and Persians, to transplant whole colonies of one conquered race and settle them in the territory of another subject people—sometimes probably the colonies thus introduced were superior in civilization to those people amongst whom they were settled, and acted as civilizing military colonies—but the main purpose of the transfer was apparently simply to break up national ties—and to fuse the whole population of the empire into one submissive whole.

Occasionally, on the other hand, the less civilized race got the better of the civilized—and effected something more than a change of dynasty though they were sometimes absorbed into the conquered race. This seems more than once to have happened in Assyria and Babylonia, and the Medes and Persians were apparently far less civilized than the people they conquered.

In Egypt the Hyksos would appear to have been an uncivilized race as compared with the Egyptians—but in all these cases we know too little of the details of history to judge of the precise action of the one race upon the other.

Nor is much to be learned from the earlier history of Greece. That the Hellenic races, which achieved so rapidly a civilization in some respects unsurpassed as yet by any human family, were from the earliest times of authentic history always in contact with less civilized races, is clear, and also that the Hellenes were themselves inferior in civilization to the Phœnicians and Egyptians, the Assyrians, and other neighbours to the south-east and south of the Mediterranean—and drew from them much which was essential to Greek culture in its best time. But here, again, of the definite mode of action we know little.

Much more is to be learnt from the Roman history of every age. The tribes which formed the original constituent parts of the early Roman State were apparently in a state of civilization, much less advanced than their older neighbours, the Etruscans, who were gradually absorbed into the Roman commonwealth, and probably contributed more than any other single race to mould the Roman civilization of later days.

It is clear that, from the first, absorption and assimilation, and not extermination, was the usual, and apparently the chosen result of Roman conquest. The aim was extension of empire —not mere triumph over a national rival. Whether the people conquered were Jews or Egyptians or other possessors of an ancient civilization—or Gauls and Britons in a state of extreme barbarism—the object was always the same, though it might require very different and even opposite treatment to attain it. In the former case, when a civilized kingdom was subdued, steps

might be taken to bring to Rome somewhat of the arts, the literature, and refinement of the conquered people, but these were secondary objects, and were often aimed at no further than was needed to adorn the triumphal procession of the conqueror. The essential object was always dominion. The conquered country was to be bodily absorbed into the Imperial Republic or Empire with as little change as was consistent with safety —and apart from what personal vanity or avarice might demand, little need be taken from the conquered people, as long as the ruler bowed to the majesty of Rome, and was content to retain his crown as a vassal of Rome. Sufficient garrisons were placed in all posts of great strategic importance, but the form of government, and the framework and all details of internal administration remained unchanged, few additions or alterations were made, save those which were essential to the Empire. Regarding these the roughest Roman soldier seems to have had an instinct almost as intuitive and discriminating as Cæsar himself: as long as the people were content to act on the principle "We have no king but Cæsar" all might go on as under their own rulers, great causes and capital cases being alone reserved for decision by Imperial authority. Our own Empire in India, and that of the Manchus in China, are modern examples of the working of a policy akin to that of Rome.

An entirely different course was followed (though it was to secure the same object) when a rude and barbarous people were subdued. We could hardly have a better example than is afforded by the history of our own island. The Romans found Britain in a condition of civilization little if at all superior to that of the Zulus in our own day. In each province of the island, after the preliminary work of conquest by victory in the field, secure communication by means of military roads between carefully selected strategical points was the first care of the conquerors. Wherever the military detachments rested even for a single day, the post was appropriately fortified according to the best known rules of military art, and the fortifications of all points of permanent strategical importance were of a character to indicate that permanent undisputed possession of the country was the dominant idea of the conqueror. So wisely, with reference to the natural features of the country, were the lines of communications and fortified posts chosen by the Roman invaders, that the general direction of the trunk lines of Roman road will usually be found identical with those of our modern great lines of railway, the deviations being in most cases due either to natural obstacles which the modern locomotive finds more difficult to surmount than did the Roman Legion; whilst there are few natural ports, or natural centres of commercial transit, which are

not marked by the remains of Roman stations, so placed as effectually to command the communications and trade.

Of the results of Roman occupation on civil administration and on social and political life in Britain we have fewer remains, but they are sufficient to show how wise, with a view to permanent empire, was the policy adopted. The native chiefs and rulers were subsidised, and as far as possible Romanised—and apparently the details of local administration were conducted through them with the result of gradually settling and civilizing the barbarian British tribes who remained in the open country. The fiercer and more untameable tribes were pushed back into the mountainous regions of Wales and North Britain, and there shut in by good military frontier roads, communicating between strong fortified posts, the fortifications being sometimes continuous for long distances.

In the open country, administered under Imperial authority, great progress seems to have been made during two or three centuries in assimilating the social and municipal life of the people to that of the older provinces of the Empire. The remains of fortified towns with their baths and temples, of country villas which had evidently been the abode of leisurely and even luxurious civilized occupants—and other remains of the Roman period—concur with the somewhat meagre written historical records in showing that before the Romans left the island, life in Roman Britain had become at least as much assimilated to life in the older provinces of the Empire, as life in our colonies is to the English life of the present day.

(Let me note in passing that a system of securing military possession of the country precisely similar in principle to that adopted by the Romans in Great Britain was inculcated on Sir Harry Smith by the Duke of Wellington, when discussing the Kaffir War in which Sir Harry Smith was engaged; and the system so inculcated was practically carried out by Sir George Cathcart, whose volume of despatches from South Africa lays down a complete system for securing military possession of British Kaffraria, including the Amatola mountains, such as might have been dictated by Julius Cæsar or Agricola.)

The question, What was the result on the bulk of the native British population? has next to be considered.

There is much evidence to prove that the total population of the southern part of the island must have greatly increased during the Roman occupation. The greater part of whatever population existed was probably of aboriginal races, for except to retired soldiers or traders who had lived here previously, there was little to tempt emigrants from southern Europe or Greece to settle here, and till late in the period of Roman sway, we

hear little of any considerable immigrations or invasions from the eastward, from Germany or Scandinavia.

The Roman language had evidently been from the first the language of officialism and of the educated classes.

How far it had superseded the mother tongue of the aborigines in daily and domestic use it is difficult now to guess, owing to the numerous successive waves of large immigrations of northern races after the Romans left. The same may be said of the physical stock. Cornwall is evidently not the only English province which may claim a large amount of aboriginal element in its population. But to what extent the population of other provinces has undergone changes and additions similar to those known to have occurred in Cornwall during the period of recent history, it would be difficult accurately to estimate.

It is, however, clear that before the Romans left, so many of the aborigines had been civilized and educated as Romans, that men and women of British birth and Roman education were sufficiently numerous to be a recognisable element among the upper classes in Rome.

Space does not admit of more than a glance at the interaction of civilized on uncivilized races during the long period which elapsed between the time when the tide of Roman conquest began to recede, and the recommencement of a career of Eastern conquest by the Western nations about the time of the crusades. Western Europe had in the interim been overwhelmed by invading barbarians from the north and east. Occupying one province after another of the Roman Empire, immigrant conquerors became themselves gradually more or less settled, civilized, and Romanised, changed in religion and often in language, till they took the form of the modern nationalities of Europe, nearly as we see them at present.

The process seems in most cases to have been very uniform. Sometimes as successful invaders and conquerors, sometimes as allies or hired auxiliaries of the Christian ruler, the heathen uncivilized immigrants acquired the substantial power of the sword in a Roman province, learned many of the arts, adopted much of the civilization, and finally the religion of the conquered people, intermarried with, and settled amongst them without losing the uncivilized energy they had brought with them from the distant regions of the north-east. After a century or two they were a new people, with settled habits and national aspirations, wedded to the land of their adoption, determined to defend it and its institutions to the death, and as firmly rooted in the soil as if for the preceding centuries they had lived on it, and not been ceaselessly journeying westward from the original cradle of their race.

How, after many generations of rest, after the fermentation of new ideas in religion, in politics, in commerce, and in all the arts of life, the inspiration of foreign adventure again pervaded the people of Western Europe, and directed the swarms of emigration to distant lands, would take long to tell. We must pass over the many valuable lessons to be gathered from the painful but instructive history of the contact between civilized and uncivilized races in America,—Spanish, French, Dutch, and English,—as well as in Polynesia and Africa, Australia and Australasia, up to our own time, and come at once to the more recent lessons afforded by our experience in our own day, and especially in Southern Africa, to which I would at present mainly confine my remarks.

South African experience is, for many reasons, especially valuable in examining the present question, owing to the variety of races to which our experience relates. Of all these races I would remark that they seem to me to have been, when they first met with Europeans, descending and not ascending in the scale of civilization. None of them have any recorded history which could place the fact beyond the reach of doubt; such evidence as exists must be sought in language and legend, and scanty traces of migration, but all races bear some traces of descent from ancestors in a higher state of civilization than their modern representatives were when we first heard of them. This is especially the case with regard to their language and to such differences as exist between early and late immigrations of the same race.

1. There are the races which have apparently most claim to be considered aboriginal. The "Red," or "Yellow skinned men,"—the tawny complexioned races: Hottentots, Bushmen, Namaquas, remarkable for their generally short stature, broad and prominent cheek-bones, and for their peculiar languages, which have given rise to a controversy, as yet unsettled whether their affinities are with the Coptic, Berber, Galla, Ethiopic languages of Northern Africa, with the Finnish of Northern Europe, or whether they form a class apart, distinct from any yet known modern tongues.

Time does not admit of our entering into the discussion, but all who could wish to pursue the subject further would do well to consult the excellent article on "Hottentots" by Mr. Noble, Clerk of the Legislative Council in Cape Town, which will be found in the new edition of the *Encyclopædia Britannica* now in course of publication, where the argument will be found summarised with reference to the authorities Wallman—the Doctors Hahn, three in number—Tindall, Bleek, Kronlein, and others who have written at length on the subject.

Mr. Noble notes that the early Dutch travellers Kolben, &c., represent the Hottentots as mild, placable, ingenuous, affectionate,

hospitable, indolent, unenergetic. Their description of the personal appearance of the Hottentots is: body slender, well proportioned, small hands and feet, skin leathery brown, faces oval, projecting cheek bones; eyes dark, wide apart, deep set; nose broad, thick, flat; chin pointed, mouth large, thick upturned lips; hair in woolly tufts; beard scanty.

The women are described as held in high esteem among all the tribes of Hottentots, but they were made to do the hard work of the family—an oath by mother or sister was considered the most binding of any.

Polygamy was sometimes allowed, but was not common.

The early travellers could discover no traces of religion. The Hottentots were great believers in witchcraft, had a superstitious reverence for some insects and animals, for the moon and other heavenly bodies, and for the spirits of their ancestors, but their notions of a supreme being were very vague and contradictory, and they had no fixed belief in existence after death.

The Berg Damaras are apparently of Bantu origin, and in their physique hardly to be distinguished from the Damaras proper. But they have been conquered and enslaved by tribes of Namaqua origin and now speak a dialect of Namaqua, a very interesting instance of a change of language of which I know no other instance in South Africa.

The first question in this, as in other cases, relates to the continued existence of these races in the presence of civilization. I have been frequently assured by educated men in South Africa who had paid some attention to such subjects "that it was impossible nowadays to meet with a single man of pure Hottentot race." But I soon found on enquiring further that this was true only if it were meant that the man must be, not only of pure Hottentot race, but that he was unbaptized, and able to speak his own Hottentot language. I found that wherever there were many of the class popularly known as "Hottentots" or "Bastards," it was not difficult to find many individuals who, as far as could be learnt by personal examination, were of pure Hottentot parentage; but all who were baptized, and many who were not, had adopted Christian names, and generally Dutch surnames also, and were known as "off coloured boys" or "Darkies," regarding the name of Hottentot as a term of reproach; this is especially apt to be the case where a man has prospered, and acquired money, as many have; the language, moreover, rapidly falling into disuse, and now useful only among the Hottentots themselves, who almost always understand Cape Dutch.

The conclusion I came to at last was—that it was doubtful whether there were not, at this moment, more people of pure or

nearly pure Hottentot blood within 300 miles of Cape Town than there were when Van Riebeek first founded the Dutch Colony. I was struck with the very small numbers of natives in each tribe as estimated by the early voyagers, and summing up the numbers of those tribes whose territorial limits could be defined, it seemed to me that there were now, within those limits, as many, if not more, people of apparently genuine and unmixed Hottentot descent, than there were when the traveller wrote. This will not appear surprising if, setting aside for the moment the theory that the race must be dying out, we consider the great area of country required to support a nomad population subsisting mainly by the chase, as compared with the area required to support the same numbers living as labourers on farms or vineyards.

The official returns as far as they go confirm this view.

The early Dutch travellers speak of the Hottentots as numbering about 6,000 souls.

Sir J. Barrow in 1798 estimated them at 1,500.

An official return in 1806 gave male Hottentots, 9,784; females, 10,642; total, 20,426.

In 1824	31,000
In 1865	81,589
In 1875	98,561

But in the earlier returns slaves of other races were apparently included, and many of mixed races included in the later official census, as Hottentots. Dr. Theophilus Hahn estimated the Namaquas at 17,000 in Great Namaqualand and Damaraland.

The point, however, as to whether the Hottentots of pure race in the Cape Colony are or are not dying out admits, I think, of being more clearly ascertained than by simple observation uncorrected by carefully collected statistics. It is useless to attempt any test by means of ordinary census returns, for few will register themselves as Hottentots who can possibly class themselves under any more respectable heading. But there are more than one of the large Moravian settlements specially devoted to the maintenance of Hottentots, and where the missionaries possess an unusual amount of knowledge of the personal history of their flock. Such are, Mamre, Gnadendhal, and others, at either of which it would be possible to obtain a fairly accurate history of the descent and other particulars of ethnological import—regarding probably two thousand of the people in and around the station. The enquiry should be made personally, in house to house visitation, by a competent scientific reporter, who is acquainted with some of the leading points to be investigated in dealing with the problems of Anthropology, with an eye for variations of physical features, and an ear

for language. Dr. Hahn, the zealous Professor of Chemistry in the South African College, Cape Town, has, I know, made such matters his study at Mamre, in the Malmesbury district, and with the aid of other members of the South African Philosophical Society would be able, I have no doubt, to throw much light on the subject. It would be desirable to enquire, in the same manner, regarding the births and deaths, and duration of life in each family selected, and to collect as much information as possible bearing on the vital statistics of the race.

I fear it will be found that, even if I am right in believing that the aggregate numbers of the race have not decreased since they came in close contact with Europeans, the rate of mortality among them will be found to be very high as compared with either the European, or with other African races. Measles and small-pox create terrible havoc among them, whenever they break out. Venereal diseases are abnormally frequent and fatal, and the destruction caused by spirit drinking is frightful, the race appearing to be unable to resist either the temptation to drink, or the ill effects of drinking, to a degree unusual even among savage races.

It is difficult to draw any very distinct line between Namaquas and Hottentots. But whereas the Hottentots are generally considered as confined to the old Cape Colony proper, the Namaquas form distinct tribes, more or less independent of Colonial control, and in Great Namaqualand beyond Colonial jurisdiction. Hence they afford a better field for ethnological study by the Anthropologist and Philologist. But they throw less light on the immediate subject of our inquiry, the laws affecting the relations between civilized and savage life. They have been sensibly receding northwards before the advancing colonists; and have come in hostile contact with the Damaras, a Bantu race, moving southwards and westwards, with whom they raged war, with varying success, till peace was restored, mainly through the intervention of the German missionaries. Damaras and Namaquas alike agreed to a modified English Protectorate, which led to the annexation of the port of Walwich Bay, and might have led to the settlement and partial civilization of the whole region between the lower Orange River, and the Portuguese frontier on the western coast, and from the sea to the Kalahari desert. But a change in the policy of the English Government has led to the withdrawal of the promised protectorate, and according to the latest advices, to the renewal of war between Damaras and Namaquas.

Between the Namaquas and the Bechuana tribes along the banks of the Orange River and its northern tributaries as far east as Basutoland, were found the Korannas, apparently an

offshoot from the Great Namaqua family, and mixed up with them, Griquas and Bastards, and other mixed races, whose chief interest to our present enquiry consists in the evidence their history during the past eighty years affords, that such mixed races, moving in front of the advancing wave of European colonisation, form tribes with a novel organisation of their own, partly European, especially in its official aspects, but claiming tribal rights and a national existence, on the same grounds and to the same extent as if they belonged to an ancient dynasty ruling over a tribe of historical importance.

Thus the Griquas, both of Eastern and Western Griqualand, are clearly of very modern origin, having grown up within this century from mixed and broken tribes, chiefly Namaqua, Hottentot, and Koranna, but with a considerable mixture of Bechuana and other Kaffir and negro blood, and some Dutch blood; with much Dutch and English training from missionaries and frontier farmers, traders, and Europeans of various kinds. Their principal chiefs generally trace back their pedigree to a grandfather, or great grandfather at furthest, who is known to have been in the service of some Dutch colonial family as slave, or hired servant. The possession of a few horses or guns by a man of energy and intelligence superior to his fellows was sufficient to found a chiefship, and to form the nucleus of a tribe which gathered round from waifs and strays of the Colony and broken border tribes. Sooner or later European adventurers appeared, and attached themselves to the chief, sometimes as traders, or as secretaries and advisers. If the chief was prudent and successful, he generally invited a missionary to settle with, or near him, and he seems always to have felt that his power was not firmly established unless he persuaded some European with less interested motives than the itinerant trader, or loafing adventurer, to throw in his lot with the new dynasty.

In a few years the new-fledged chief would have, besides his missionary and private secretary, his "Staats Secretary," who often were all Europeans, and in addition to his councillors, the indispensible appendages to any native chiefs, he had his "Raad," or legislature, and surveyors, and land registrars, and, in two instances, an elaborately written constitution, on the European model.

It may be owing to the incongruous materials employed, and perhaps to untoward circumstances, but none of these constitutional experiments have survived the original projectors, and in more than one instance, when the chief grew old, he recognised the instability of the edifice he had attempted to rear, and surrendered his power during his own lifetime into other hands.

Bushmen.—The following is the usual, and, as far as I was able to judge, accurate description of the Bushman race:—Small stature, 4½ feet being rarely exceeded; dirty yellow-coloured complexion; Mongolian type of face; cheek-bones prominent, eyes deeply set; nose small and depressed; hair in woolly tufts; hollow back, protruding stomach; thick hinder parts; small limbs, and very small hands and feet.

Habitations—rocks, rarely huts; no cattle, and few dogs; arms: bows and poisoned arrows. No tribal unity. No chiefs. Language, monosyllabic, abounding in clicks, and having no numerals beyond two.

That the Bushmen proper are rapidly disappearing admits, I fear, of no doubt; but even in their case I have found generally much error in the popular estimates of their numbers, or even their continued existence.

In their wild state, every man's hand is against them, and up to the present time we hear hideous tales of their sufferings, and their being shot like wild beasts, and being reduced by want of food to cannibalism, in the difficult border-country where they still continue to live at large, in rocky and barren places, and in the thick bush which fills the ravines in the lower part of the Orange River and its tributaries.

As the large game disappears they are more often reduced to feed on the smaller wild animals, and even on reptiles and insects, the larger grasshoppers, and locusts, and ants affording them a frequent meal, and they are charged with occasional cannibalism in seasons of great scarcity. They are naturally unable to resist the temptation of stealing the sheep and cattle of the frontier colonists, and this propensity, joined to their reputation for using poisoned arrows, has so steeled the hearts of many border farmers, that to shoot a wild Bushman is hardly regarded as a crime in any but a strict legal sense.

Time does not admit of more than a passing allusion to their most interesting, and, in a philological sense, most important language; their marvellously spirited and accurate cave paintings and rock sculptures, and their utensils and weapons which have frequently a special interest as illustrating the use of stone concurrently with metal. Thus to pick up the surface of the soil, and prepare it for sowing, they still occasionally use a sharpened stick loaded with a round ball of stone at the thicker end, to give it weight and impetus; they still sometimes use arrows armed with neatly formed flint splinters, and I was told by a Damaraland trader, that he found in one place the Bushmen were frequent purchasers at the trader's wagon or store of bottles of cheap German scent. He enquired the object of such an unexpected taste, and found that the Bushmen had discovered

that the little bottles, thickened towards the lower part so as to hold the less fluid, could by a blow in a particular direction, be splintered so as to furnish excellent arrow-heads. He could not learn that the scent was valued except as a dram of strong spirit.

When captured or domesticated the Bushmen make excellent herdsmen, and often settle down as valued servants of the European farmer; but as they learn to speak Dutch, and lose the habit of using their own language, intermarry with other races, and improve in physique by regular and abundant food, they gradually lose some of the most characteristic features of their people, and merge into other races or denominations, becoming classed as Hottentots or Bastards, among whom an unusually irascible or violent temper, short stature, extraordinary aptitude for music, and for delineation of animals or human figures is often accounted for by attributing a Bushman origin to the possessor of these Bushman characteristics.

It is unnecessary to remind you of the invaluable labours of the late Dr. Bleek, and of his sister-in-law, Miss Lloyd, in noting and preserving record of all that concerns this most interesting race—their language, physical characteristics, arts, legends, and habits. I do not know that a more valuable contribution could be made to South African anthropolgoy than by enabling Miss Lloyd to complete her researches by visiting the frontier districts where alone the Bushman is still to be found in his primitive state, and by giving to the world, by printing and publishing, the unpublished collections of Dr. Bleek, and the large additions to his "Papers on native African Races," which she has herself collected.

Mr. Stowe, the Geological Surveyor of the Orange Free State, is another most zealous and trustworthy labourer in the same field. His geological researches have frequently led him into the wild inaccessible country to which the Bushmen habitually retreat, and he has taken every advantage of his opportunities to record the results of his observations which will, I hope, be speedily published, and will be sure to form a most valuable contribution to South African philology and anthropology.

I may remark that we frequently hear of Bushmen in Damaraland, and in the country north and east of the Limpopo, and they are sometimes spoken of, in Damaraland especially, as living in larger and more settled communities than the Bushmen of the Drakensberg, as being of stature as large as the Namaquas, and able to smelt ore, and work it into ornaments and utensils, which they sell to their Damara neighbours. Whether or not they are true Bushmen, or fugitives and outcasts from other broken tribes called "Bushmen" from their wandering and wild habits, I could not ascertain, but it would be interesting to learn

more about them, as they are obviously a less scattered and wild race than the Bushmen of the Drakensberg.

Some of the people known as "Bushmen" in the Northern Transvaal are obviously Korannas, or other remnants of mixed races or broken tribes, but there may still be others of genuine Bushman race, as known to us further south.

The Bantu races, whether of the Bechuana, Kaffir, or Zulu families, are so well known that I need attempt no more than a very brief general description of the distinctive points in which they differ from the races nearest them in Africa. All are of a type clearly different from either the Hottentot or genuine Negro race. They are generally large of stature and well formed; of a dark brown bronze colour, very rarely black complexion, and by no means assimilated in any way to a negro type, good straight legs, with moderately large but well formed feet, fairly high in the instep, and rarely "lark-heeled" like the negro. The skull is generally more of the European than of the Negro or Malay type, with a broad and moderately high forehead. The lips and nose are thick but not negroid; the hair crisped and closely curled, but not woolly.

The skin is peculiarly free from hair or even down, and this especially when the skin is healthy and well nourished, and yet more when lubricated with fat and ochre, gives it a glossy appearance like that of bronze.

These are generally the characteristics of all families and sub-divisions of the Bantu races, but they differ much *inter se* in the degree in which such characteristics are marked.

There is much controversy as to which is the superior race in the great Bantu family, and I generally found that those who had lived longest among them were inclined to give the palm to that race with which they had been most associated. To my own eye the Gaikas, and Galekas, and some of the Zulus, afforded some of the finest specimens of the race I saw, but I would advise more accurate test by measurement and weighing before coming to any conclusion, and it would be well that the observer should note the pedigree of the examples he selects, for the national practice of "eating up" a conquered tribe, *i.e.*, slaughtering the older folk, especially the males, and all capable of fighting, but incapable of work, and absorbing all the younger women, and all the children into the tribe of the conqueror, leads to great confusion of race—and even a superficial observer may frequently note obvious differences among the inhabitants of the same kraal, and learn that the exceptional form or complexion may be accounted for by the presence of captives of other races who had been absorbed into the tribe, after their own had been "eaten up."

The chiefs are in general notably superior to their followers in physique.

There are very great differences in culture and civilization among the different tribes. The Bechuana tribes, including the Batlapins, Basutos, &c., seem by common consent of all observers to be placed at the head of the list; and from the observations of the earlier travellers, and of Burchell especially, it is clear that they were greatly in advance of the Kaffirs and Zulus in civilization when they first met the European travellers and colonists in South Africa; though, in their case, as well as in that of all other South African races, there is much to show that they have degenerated from a higher grade of civilization, rather than risen from a lower state.

Their language is one of the reasons adduced to prove that the Bechuana tribes belong to a later wave of immigration than others of the Bantu family. It has fewer "clicks" and Hottentot words, and other Hottentot elements, than the Zulu or Amakosa Kaffir. They have also among them a nomadic race of serfs (Balala), who are sometimes supposed to belong to an older wave of Bantu immigration, which was followed and conquered by later arrivals of Bechuanas.

In the arts of life—in smelting and working iron and copper, in agriculture, in building houses with many rooms, upright walls, and a sloping roof, the Bechuanas are far in advance of all the Kaffir tribes. They are most industrious, and more willing to adopt new habits and the improvements of civilized life.

The rule of the chiefs is less despotic, and the habit of congregating in large towns of from 5,000 to 40,000 inhabitants favours improvement and gives a better opening for the labours of the missionaries who have made so much progress in civilizing and converting some of the Bechuana tribes.

In religious belief the Bechuanas, when the missionaries first came among them, differed little from the other Bantu tribes, as we now find those who have not had much intercourse with Europeans. Except in the case of witchcraft, in some vague influences of ancestral spirits, and in omens, they had little definite belief. Of any thing approaching our conception of a Divine or creative power, of a soul as distinct from life and intellect, of spiritual existences—they were sceptical. They were, in fact, materialistic Sadducees.

It would take long to tell of the changes effected by the teaching and influence of the missionaries, especially those of the London Missionary Society, who have laboured among the Bechuana tribes.

I doubt whether five centuries of Roman dominion, and of the

preaching of early Christian missionaries, did much more to civilize and elevate the savage inhabitants of our own island, than has been effected by seventy years of the labour of men like Moffat, Livingstone, Thompson, John Mackenzie, and Hepburn, among the Bechuana tribes. Let any one contrast the accounts given by humane and observant travellers like Burchell, with what may now be seen in the country between the Vaal and the Molappo, or north of that to the northern confines of the Christian king Kama, of Kamangwato, and he will be able to appreciate the difference.

Unfortunately, as in Ancient Britain and everywhere else, so in Bechuanaland, the progress of civilization has inevitably sapped the authority of the barbarian tribal chief, and the absence of any temporal substitute threatens to produce the same anarchical condition which followed the withdrawal of the Romans from Britain. Threatened from the north by the Matabele Zulus, and from the east by the advancing Trek Boers, the Bechuanas, both chiefs and people, have in vain prayed to be taken under the protection of the British Government.

The British Government has repeatedly declined to accept the allegiance, and time alone can show whether some chief or adopted foreigner will arise with the genius and energy needed to repel foreign invasion, and to preserve order in the country, or whether the Bechuanas will be subdued, and absorbed or annexed to some other Power, or be driven on to resume the ceaseless slow migrations in front of more powerful tribes pressing on them, which seems to have been their dreary lot for ages before they fell in with the white men advancing northward from the Cape of Good Hope.

In the other and less advanced branches of the great Bantu family there is much difference in the civilization of various clans, as they have been more or less under the influence of their European neighbours.

In almost every case the impression given by the earliest European observers is that of the extreme savagery of the race as first known to European visitors. Making every allowance for prejudice, and for other circumstances affecting the judgment or competence of observers, it is impossible to read the accounts given by Sir William Harris, Captain Alan Gardiner, Isaacs, and many other competent and by no means unfavourably biassed travellers, without being convinced that the normal state of most of the Bantu tribes who did not belong to the Bechuana family, as apparent to the early European observers, was one of extreme barbarism.

It is often stated, but, as far as I know, entirely on the evidence of unsupported oral tradition, that there was a time not

much anterior to the appearance of Chaka, as founder of the Zulu power, say seventy years ago, when the regions now known as Zululand and Natal were the abode of a simple, peaceful, primitive people, living a pastoral life, in small tribes, under independant chiefs, seldom going to war, and when they did quarrel, settling their disputes by a formal fight in battle array, which decided the question of relative supremacy, without leading to prolonged hostilities or disturbing the generally neighbourly relations of the clans engaged. The picture is a pleasing one, but not consistent with known and undoubted facts, and I fear must to a great extent be classed with the poetical histories of a golden age in other parts of the world. There can be no doubt that, eighty years ago, the country in question was very sparsely inhabited by small tribes, which were slowly moving southward and eastward, along the coast regions, between the sea and the great ranges of which the Drakensberg is the best known, and that the country was full of elephants and other large game to an extent incompatible with the presence of numerous or strong tribes.

There seems no reason to doubt the story of the origin of the Zulu power—that a petty chief and fugitive from his own country, passed some years in the frontier provinces of the Cape Colony, and there learnt something of European discipline, which he carried back with him to his own country, and used to subdue neighbouring tribes, establishing something like a kingdom. He left, however, each tribe as it was subjected, under the rule of its own chiefs and headmen, a humane mistake, as it seemed to his successors, leading to a conspiracy against him, and to his own assassination. His favourite lieutenant, Chaka, resolved to correct this mistake, and introduced the custom of assimilating each conquered clan, and absorbing it into the conqueror's own tribe of Zulus. This was effected by slaying or putting to flight all adult males who were likely to be incorrigible upholders of their own tribal rights, and the absorption of the younger males and females into the ranks of the victors. This policy was consistently followed, with some variations of energy and success, by Chaka and his successors, Dingaan, Panda, and Cetywayo. It was effectual in welding all the conquered people into one nation, though the assimilation and extinction of separate rights was more perfect in the case of some tribes than of others. As a rule the centralization of authority, the destruction of separate tribal influence and of the power of the tribal chiefs, was very complete. The fighting men were organised in regiments instead of tribes. Each regiment was made to consist of a mixture of various tribes, the warriors being chosen rather for equality of age than for

similarity of origin, and commanded by a chief, chosen by the king for his valour and devotion to his sovereign rather than for his descent or tribal connection. The system was of course not always carried out with unvarying exactness and completeness, and occasional concessions were made to local and family influence, so that the regiments became more like a local militia under command of the local chief, than a royal battalion under the centralised authority of a commander selected by the king. But the general result was effectually to substitute centralised royal authority for tribal allegiance.

When and by whom the important change was made, which substituted the short stabbing Zulu pike for the assegai or light javelin, whether by Chaka or his predecessor, is not agreed. It was probably Chaka, who certainly carried to perfection the stern discipline, which, with the use of the short pike, made it the invariable duty of the Zulu "impi" to come to close quarters as speedily as possible, after their enemy was aware of their proximity, and to overwhelm him with a mob of warriors who showed no quarter, and were determined to conquer or die.

There are many Zulus yet living, and in active possession of all their faculties, who were warriors in Chaka's impis before they had learnt what defeat meant. They are within reach of Sir Theophilus Shepstone, of the Hon. Chas. Brownlee, and of surviving members of the brave band of Trek Boers and Englishmen, who remember the days when under Dingaan the Zulus suffered their first repulse. If some of these gentlemen could be induced (and no men are more competent than those I have named) to take pen in hand and note down their recollections of what they have seen and heard of the half century between 1830 and 1880, they would furnish a record of great historical and military value. How Chaka organised, armed, and dressed his battalion for parade and for the field, how he mustered and exercised them in peace, and fed and marched them in war;—how they were trained to irresistible attack, regardless of wounds or certain destruction;—how their conduct in action was scrutinised and conspicuous bravery was rewarded;—how at the grim assize of the "coward's tree" cases of misconduct and failure in duty were heard and punished with instant death;—how Chaka's system was modified by his successors, especially by the introduction of firearms,—these and all cognate topics are matters of great military importance, and an accurate record of them would furnish many a useful hint to the military reformer or organiser of the present day.

Not less valuable would be the record of the experience of the Trek Boers. The history of the Bloody Sunday, of the

massacres of Weenen, Bushman's river, and of Blaauwkrantz, when hundreds of men, women, and children were surprised and slain by Dingaan's impis, all these afford something more than material for a tragedy or thrilling romance. The history is full of instruction how to defend and protect peaceful agriculturists within reach of savage neighbours.

Again, how the Trek Boers, never mustering a thousand guns, finally defeated Dingaan's tens of thousands of unconquered warriors;—how the Boers never moved camp till they had scouted the country for ten or twelve miles on their purposed line of march;—how they moved with their mounted fighting men in pairs (the Boer and his "Achter Ryter" with his spare firelock), thrown out in advance and on each flank for a distance of four or five miles in every direction;—how at the slightest alarm of a body of the enemy in sight, the wagons were closed up or moved into "laager;"—how the wagon "laager," with more women and children than men inside it, was rendered as impregnable as a British infantry square at Waterloo or Ulundi;—how the wagons, parked so as to protect the oxen as well as the people, were fenced with brushwood and skins, so as to be impervious to a rush of pike men;—how the women and children helped to load the cumbrous "roer" or elephant gun, and, if need were, sometimes with hatchet or knife, defended the wagon from Kaffirs creeping in through unguarded loopholes, these and many other details have a romantic interest for all readers, but they contain many valuable lessons for the military student, even when he has to imagine earthworks in place of wagon "laagers" and firearms with a range of 2,000 yards in place of "Brown Bess," good for a hundred yards, or the assegai of little effect above thirty.

It would take some time fully to describe the effects of the growth of the Zulu power on their neighbours, but there are three or four movements of the population which must not pass without some notice, however brief.

1. The first is the emigration of Moselekatze, an account of which, by a nearly contemporary observer, will be found in Harris' "Wild Sports in South Africa."

It is, I have been informed on the authority of Cetywayo, the modern Zulu belief that Moselekatze was despatched by the Zulu king to "eat up" a Bechuana tribe beyond the Drackensberg—that he succeeded in his enterprise, but, instead of returning, as ordered, to the Zulu capital with his plunder and captives he marched on northward and westward, through what is now the Orange Free State and Transvaal, destroying and "eating up" tribe after tribe of comparatively peaceful and civilized Bechuanas, by whom that part of the Transvaal was then densely

occupied, annexing their cattle and younger captives, and slaughtering their warriors, whose bones were still visible in heaps when Harris visited the country.

Harris found Moselekatze not far from where Rustenberg is now, fully established as an independent sovereign, having earned the surname of the "Attila of South Africa," the scourge of Bechuanas and of the advanced guard of the great emigration of Trek Boers, who have since occupied the country Moselekatze had passed through on his move from Zululand. He seems to have felt that between the advancing Trek Boers and the Bechuanas who had come under some sort of European influence through the missionaries at Kumman and in the Griqua country, he was likely to find more than his match, and moving northwards and eastwards he finally settled with his followers, as the "Matabele," in a rich tract of country which was very sparsely inhabited, on the highland which separates the basin of the Limpopo from that of the Zambesi.

2. A very different emigration was that of the people now known as Fingoes, who appear to be the remnants of various tribes which in Chaka's time occupied what is now the western part of Natal and Zululand. I have seen men now living who remembered their old homes, but it is difficult now to identify either the original locality or the exact tribes to which they belonged, and which seem to have been "eaten up" in the early wars of Chaka, probably even before his time. We first hear of the Fingoes as a miscellaneous collection of fugitives from Zulu conquest—broken men and fragments of clans moving slowly westward and southward, continually harassed by the unbroken tribes through whose country they passed, till they found a comparatively safe refuge as Helots of the Gaikas and Galaekas, and other tribes of the Great Amakosa family.

From an early period of their wanderings they seem to have cherished hopes of protection by the Government of the White-men, whom they found moving in the opposite direction towards Natal, but it is less than thirty years since they were formally received as British subjects, and settled, some on the Fish River and its tributaries, and others in various parts of the country taken from Gaikas and Galaekas between the Kei and Umtata. They were at the time in a state of the utmost destitution, often obliged to content themselves with husks of maize and large leaves sown together to cover them, and reduced for want of regular food to support themselves on roots and wild berries.

Since that time they have prospered wonderfully, and are now rivalling the Bechuana, as an industrious, improving race.

If any one doubts the capacity of the Kaffir races for improvement and civilization, such doubts would I feel sure be removed

by a visit to the Fingo settlements. The visitor would hear from the people themselves the state of utter barbarism to which they had been reduced when they were first met by the missionaries, Messrs Ayliff, Warner, and others, and taken under British protection. He would see in the villages of headmen, like Veldtman, farmhouses and orchards which would do no discredit to an English yeoman, and he would find in their tales of how Captain Blyth ruled and advised them, and in the schools they have erected in Captain Blyth's name, at Blytheswood and elsewhere, the evidence of how the improvement—material, intellectual, and moral—has been effected.

3. There was another emigration of Zulus into what is now known as Umsilar country. Less is known of it than of Moselekatze's, or of the Fingo emigration, but Umsila's people say they were Zulus driven from Zululand, early in Chaka's time, and after many wanderings settled on the coast some hundred miles north of Delagoa Bay.

4. There is yet a fourth emigration consequent on the formation of the Zulu kingdom, which is probably as numerous as either of the others, I mean the emigration from Zululand into Natal.

When the territory which now forms the Colony of Natal was first visited by the Trek Boers, the country away from the coast was nearly void of inhabitants, a few broken tribes occupied, with the elephant and buffalo, the clearer portions of forests in the warmer and more fertile sea coast; but there were vast tracts nearly uninhabited, and hideous stories are still told of men who, within living memory, were reduced to cannibalism from want of other food.

The country had been laid waste by Zulu "impis"; some of the people who escaped massacre had been carried off to Zululand to swell the numbers of the Zulu tribes to which their conquerers belonged; others had fled and joined the retreating hordes of Fingoes; the country from the immediate low-lying sea coast to the Drakensberg, and often beyond, was practically without any settled inhabitants.

No sooner was the boundary of the British territory fixed, and the English flag hoisted in Natal, than the Zulus, as well as the races they had subjected and incorporated, discovered that the rule of the white man was infinitely easier than that of the Zulu king, and a steady tide of migration across the border set in from Zululand into Natal, which has never since stopped. Sometimes after a contest for the succession or other cause for internal war, the influx into Natal would be by thousands at a time, but more frequently it was by single individuals or families at a time.

So far from the movement being encouraged by the English authorities, every effort was made to check it. At first, before the Colony was formally declared British territory, the threatening remonstrances of the Zulu ruler were met by the promises of extradition. But the shocking fate which was found tc await returned fugitives speedily led to a refusal by the British officials to give them up, and had it been otherwise the vast extent of open waste and forest would have made it practically impossible to follow up fugitives.

But up to a very recent period no man was allowed to bring over any property: he could only be received as he stood, and if he brought cattle with him, they were sent back by the British officials to the Zulu king whenever demanded. The new comer was required at once to find some older resident in Natal to answer for him, as not being an habitual vagabond, and within a very short period he must find the means of paying an annual hut-tax.

That under such discouragements the migration should have assumed very large proportions, shows how great must have been the desire of the Zulu population tc escape from the military service and arbitrary rule of their own king. If I may judge from the cases in which I was able to examine the Zulu immigrant personally, there was no temptation to move other than the greater security of life and property. Such wages as the immigrants might earn in Natal would have been equally paid had they remained Zulu subjects with a home in Zululand, and other temptation there was none. In one case an old headman who had been contrasting the charms of his old life in Zululand with the humdrum laborious life he led in Natal, in reply to my question, "Why did he remain in Natal, when he was free to go back, and had acquired ample cattle wherewith to propitiate the king?" answered, "Here in Natal I sleep in peace with my wives, children, cattle, fowls, and mealie store about me, and when I have paid my hut-tax, no one asks me for more. I don't awake if the dogs bark. In Zululand, if the dogs barked at night, I ran and hid myself in the bush, for I did not know whether it was not a message from the capital to take an ox, or a girl, or to kill me because I had been smelt out by the witch-doctors." The extent of these emigrations from Zululand is a sufficient proof of the extraordinary vitality of the races which form the population.

There has been little foreign conquest or absorption of outside tribes since Moselekatze left Zululand to form with his followers the nation of Matabele Zulus. The Fingoes are now numbered by tens of thousands, and the native population of Natal has increased, mainly by immigration, to probably close on 400,000.

We can but cursorily glance at the changes which have taken place in the other great branch of the Bantu family, the Amakosa Kaffirs, since they came in contact with Europeans.

We first hear of them at the end of the last and beginning of the present century as encroaching on the Colony, and pressing back the Hottentot tribes in the neighbourhood of Algoa Bay. They do not, however, seem to have settled much permanently south of the Bushman's river. From that time to this the history of our intercourse with them is a history of continued collision between the frontier farmers and the native tribes. Cattle thefts and reprisals leading to a savage and generally little expected outburst of hostility—a tedious war, and a truce or peace of exhaustion is the usual history—the Kaffir tribes being invariably forced back, and a hollow settlement effected, sometimes with an attempt at improved border arrangements, or at the establishment of a neutral zone, but never with the result of doing more than delay a renewal of hostilities, as soon as the memory of what the frontier tribes had suffered in war began to grow dim.

The Colonial frontier has steadily advanced from the Liesbeck brook, or Salt river in sight of Cape Town, which was its boundary when the Dutch first established themselves; it gradually advanced step by step to the Zwartkop river beyond Port Elizabeth, and then by successive but rapid steps to the Bushman river, the Fish river, the Buffalo, the Kei, the Bashee, the Umtata, till now it has practically reached the frontier of Natal, and the most independent of Amakosa Kaffir chiefs has no really sovereign authority, except what he exercises through the permission, or by the insouciance of the British Government. I am not now speaking of rights or constitutional claims, but of practical results.

What has been the result of the proximity of European Colonists as regards the native tribes? And first as to numbers.

In the absence of reliable statistics we are left more or less at the mercy of fallacious personal observation and memory, and I found great differences of opinion among experienced and observant men, as to whether the natives in the aggregate had increased or decreased in numbers. Some opinions were very decided that within living memory there had been great decrease in the aggregate of Kaffir population; but the result of the most careful inquiry I could make satisfied me that any aggregate decrease was certainly not proved. In particular localities, it is true, it was often possible to prove a decided decrease. There had often been a dispersion of large well-known and populous kraals. There had been wholesale removals of all members of particular tribes to other distant parts, and

sometimes over a whole district which we are assured formerly "swarmed with Kaffirs," few are to be found. Such facts, of course, are in favour of a theory of aggregate decrease of population. On the other hand, the number of Kaffirs settled, two or three families together, on separate farms, in various parts of the country, is probably much larger than it was; there is a considerable population in native locations of large towns, and living as labourers in kraals around them, where formerly a Kaffir labourer was seldom seen; extensive districts which formerly were almost uninhabited now contain a large native population. This is notably the case in Pondoland, in much of the old Galaeka country, and in Griqualand East or Adam Kok's country, till lately known as Noman's land, and almost tenantless.

In no part of the country is there apparent any evidence of a decaying population. When a whole family is mustered, there is generally seen an ample proportion of healthy children of all ages around the parents, and there is every apparent evidence of a population increasing rather than dying out.

But we may hope that at no distant period a fairly accurate estimate of actual numbers of the native races may be obtained by census, and place this question of numbers beyond a doubt.

As regards other effects of European proximity on the Amakosa Kaffir, in other respects than as regards numbers, opinions are much divided. It is not uncommon to meet men of great experience and extensive observation who are very positive that the race is deteriorating. It is not easy to obtain direct and conclusive evidence on such points, but I am bound to say that I have never been satisfied with the reasons I have heard adduced for the belief. The assertion that "one never sees the magnificent savages one used to see with Hintza or Macomo in former days when I was a young volunteer in the Kaffir war," may be accounted for by other reasons than deterioration of race. The henchmen of the great Kaffir chief of forty years ago, ready to support their leader in the field, or amuse him in a war dance, were doubtless more striking figures than the old men who adhere to his shrunken fortunes and degraded state in these days, and something may be due to the enthusiasm of a youthful observer, as compared with satiated observation of the grave and reverend senior—*laudator temporis acti.* Other reasons of the supposed change will be intelligible to any one who has noted the difference between a diminutive Oriental in the unbecoming dress of an European, and the same slight figure clad in the flowing and becoming garments of Moslem or Hindu. Nothing can be more picturesque than the bronze complexioned limbs of a young Kaffir warrior with his red blanket thrown

around him. Few figures have less of the picturesque about them than the same warrior bent with the weight of three score years and ten, and clad in the costume of an English rat-catcher.

Certainly any one who sees the ordinary Kaffir labourer of modern days, divested of his usual European dress, either at work on the beach of Port Elizabeth or driving game on a hill side, or basking in the sun outside his kraal, will find it difficult to credit any serious deterioration of race.

This question is, however, one of those which admit of more accurate test than vague recollections, and casual observation of years gone by. If a few competent observers would carefully record the measurements and weights, as well as photographic portraits of typical specimens of the Kaffir population in well selected localities—such, for instance, as a tribe entirely removed from European habits and influences—a tribe in whose territory the trader, the missionary, and the European Colonist have been long established, and the communities of native workpeople at towns like Port Elizabeth, Durban, or Kimberley, they might establish a basis of sound facts for future comparison.

Regarding the physical effects of European clothing on the natives who had been used to little clothing of any kind, and that worn loose like a blanket or kaross, there has been much controversy, and the leading theories and the few facts supporting them will be found recorded in some useful papers by Lovedale and other students and teachers, and in the religious periodicals to which they are in the habit of contributing.

There can be no doubt that in South Africa, as in other countries where an uncivilized people used to scanty clothing have adopted close-fitting European garments, as a part and an evidence of civilization, there is a very general belief that the change often leads to an increase of pulmonary and other diseases. There can be little doubt of the fact that such increase of disease is observable and is easily accounted for, when, as often happens, the garments of European fashion are worn with little attention to European customs, and still less to European notions and rules of health in matters of clothing.

The native wearer has been used to little, if any, tight fitting clothing. He buys a suit of close fitting woollen clothes such as are worn by European workmen, and wears them partly as a matter of fashion, and partly because the police regulations require him to be decently clothed whenever he goes to work in town. He wears them all day, perhaps whilst hard at work, and during possibly a long hot fatiguing walk out to his own kraal; arrived there he throws them off, and of course is exposed to the effects of a sudden chill; or it some-

times happens with probably even worse results he gets wet through, and lets his thick woollen clothes dry on him.

The subject of a pattern of decent clothing which shall be better suited to native customs than our close fitting garments has engaged the serious attention of more than one energetic missionary in South Africa as a matter closely connected with the health of his flock; and on every ground, æsthetic as well as sanitary, we may wish success to the efforts of those who would devise for the Christianized or civilized natives of Africa a decent African costume, instead of a travesty of our most unbecoming and generally unsuitable European garments.

The effects of a regular and sufficient supply of good food, and of a diet less exclusively of animal food, than the best-fed people were accustomed to in their own kraals, are manifested in various ways in different parts of South Africa, but nowhere in more marked a degree than in the labourers who resort to the diamond fields.

They come from great distances, often more than 600 or 700 miles from Kimberley, and in such great numbers, that on any of the great roads leading to Kimberley, as, for instance, that from Pretoria, the stream of labourers going or returning is so constant and so great that a group of "diamond-field darkies" is seldom out of sight as the traveller watches his road, which is generally visible for some miles in advance.

The wages they get at the diamond fields are very liberal, and the food far more regular and ample than any but rich people receive in their native kraals. The result is a very marked improvement in physique during their stay at "the fields"—so great and so marked that the two lines of men, the one going, the other returning, are, practically, the one lean and ill-favoured, the other fat and well-looking; and it is generally easy as one passes a group of them sitting by the wayside to tell from their condition whether they are going to or from the diamond fields. There is probably no place in South Africa where the advantages to the native population of contact with Europeans are more evident than on the roads, especially those leading northwards and eastwards from the diamond fields to the distant regions whence the supply of labour at the Kimberley mine is chiefly drawn.

Would that the results of such contact were always equally beneficial to the native population! But a very serious increase of syphilitic disease, and its introduction into districts where it was previously unknown, are also results clearly traceable to the resort of native labourers to the diamond fields; and on the evil consequences to the population generally there is no occasion now to dwell.

Still worse are the effects of habits of spirit-drinking, too often contracted by the native labourers at the diamond fields and wherever their labour is in demand for European employers. The subject is one of primary importance in any scheme for improving the condition of the natives, either physically or in any other direction, and it deserves a more than passing notice.

I did not hear of any tribe in South Africa in which the habit of drinking some kind of fermented and exhilarating beverage was not universal before the advent of the white men. There are various kinds of mead in use among some tribes, especially the Bushmen, but the usual Kaffir beverage is a kind of beer, varying much in the mode of manufacture and in strength, but generally made from a mixture of corn meal, either millet or maize, and water, fermented. It it usually thick and pasty, requiring to be stirred up before drinking, slightly acid, and only slightly intoxicating, so that gallons may he drunk at a sitting without producing helpless intoxication. It muddles the drinkers brain and makes him stupid—affectionate or quarrelsome according to his temper. To be a great drinker is accounted everywhere among the heathen Kaffirs a sign of manhood, and I have heard of incredible quantities being consumed at one bout, *e.g.*, of chiefs who prided themselves on being able to drink nine gallons at a sitting without being incapacitated for talking or locomotion. Such bouts, of course, are not of every day occurrence, they are subjects of much previous talk and preparation, and guests are invited from a distance, and often in great numbers, to partake of a great man's hospitality—but beer of some kind is generally to be found at all times in the kraal of a prosperous Kaffir, and in moderation it is clearly wholesome food.

This, however, can only be said of Kaffir beer unmixed with spirits or other intoxicating drugs, a fashion consequent on intercourse with European traders, and much, I fear, on the increase.

But no adulteration of Kaffir beer can make it as pernicious in its effects as the drinking of spirits—a habit entirely attributable to intercourse with Europeans, and so pernicious as to be deservedly regarded as the monster evil of native association with Europeans. The spirits consumed by the natives are usually bad in quality, partly from bad manufacture, and also from artificial adulteration with various kinds of poisonous intoxicating materials.

It is impossible to over-estimate the mischief thus done to all classes of natives, and the evil is more deplorable because intelligent natives are fully sensible of the evil, and of the ease with which, by various measures which they are not slow to point out, it might be checked.

The evil effects of spirit-drinking are certainly greater and more marked among the Hottentots and their cognate races than among the Kaffirs. But even the Kaffirs suffer more than Europeans, and if the mischief done were no greater than follows the conversion of a sober English workman and his children into a family of gin-drinkers, the evil would clearly be one deserving the most serious attention of statesmen. At present, unhampered by the existence of any enormous excise revenue, the South African Colonies have an easy mode of checking the mischief, by forbidding the indiscriminate sale of spirits to natives not specially authorised by the magistrate. The use of unadulterated Kaffir beer might be left untaxed.

The use of hemp, by smoking or drinking the juice of the macerated leaves or stalks, is the only other form of ordinary Kaffir intoxication, and it is not apparently of European origin.

After making every deduction for the evil results to the native races from contact with Europeans, I have myself no doubt that the balance is greatly in favour of the natives generally, but especially the Kaffir races, having increased in numbers as well as having improved in physique by such contact.

We have hitherto considered chiefly the physical results of European contact. Let us now briefly consider how such contact has affected the general intellectual and moral standard of the native races.

As regards intellectual change, there can, of course, be no doubt of the enormous extent of the change as well of the advantages to the natives, which result from communicating such arts as writing, reading, and printing, and from opening to untutored and unlettered races the vast stores of accumulated knowledge which but for those arts could not be collected or preserved. One hears, occasionally, doubts on such points expressed by those who have known uninstructed and uncivilized persons of more than average natural quickness of apprehension and sagacity ; but no one can seriously weigh the mental powers of the ablest savage ever known, against those of a man of the same race who has received an European education, without feeling that there is no comparison between the intellectual powers of the two men, and that, however great the natural force of intellect may be in the one, it is impossible to resist the conviction that his intellectual power would have been infinitely increased could he have enjoyed the advantages of education accorded to the other.

The question of the moral improvement of natives through contact with European civilization is, I will not say less clear, but it is certainly more controverted. We constantly hear it said

that "an educated or christianized native is a native spoiled, and that natives who have been most influenced by civilized contact and teaching have lost most in truthfulness, docility, and other moral qualities for which, as untutored savages, they were most remarkable."

To what extent is this very common sort of assertion justified by experience? It could hardly be so common in the mouths of people not immoral nor inhumane, without some element of truth or half truth.

Let us consider, in the first place, that it is chiefly as servants, or in some sort of servile capacity, that the natives are judged of by such critics, and that as servants it is not only possible, but certain, that whatever changes, educational or otherwise, follow on contact with Europeans, they would necessarily derogate from the value of the recipient as a servant. We do not require the authority of tradition to assure us that education had not improved Alfred's capacity as a drudge in the neatherd's cottage, and the goodwife would have found the cow-boy apter and more attentive at turning her cakes than the scholar and hero-king.

The doglike fidelity—the unreasoning personal attachment to the hand that feeds and can punish—the habits of implicit obedience, of observance of trusts, under every form of temptation, are natural characteristics of the untutored man, and make a valuable servant when the purely animal instincts are once subdued. Such useful qualities, however, are not necessarily nor often improved by opening the mind through education, direct or indirect. It is a great thing if they are not impaired or destroyed. They are like the speed or agility developed by savage life—useful natural qualities, rarely improved, and sometimes much impaired by civilization.

We may note that similar complaints are made of the same class in every part of the world. Nowhere in Europe, Asia, Africa, America, or Australia do we hear that servants as a class are improving in the estimation of employers who need their services. The fact is, the tendency of all modern teaching is to make those who formerly worked for others now work for themselves. The two objects are not incompatible, and it is the duty of modern education to reconcile them. The process is not always easy, but it is not, I think, more difficult in the case of South African natives than of other races emerging from barbarism and slavery, and I can testify that such reconciliation is habitually effected by those who set about the task with an equal regard for the wants and wishes of the employed, as well as the employers of labour.

In every other respect than as docile drudges, agrarian or

domestic, there can be no doubt of the great moral as well as intellectual and physical improvement effected by the contact of natives with Europeans. Let any one contrast any account of any native community in South Africa as it was before European colonists arrived, with what it is now, as he may find it by personal inspection and experience.

Let us take, for instance, the Hottentots, as described by travellers, from Van Riebeek and Kolben, down to Barrow and Burchell, and contrast them with such communities as he will now find at Mamre and Gnadendhal. He will hear now, no doubt, lamentations of humane and benevolent neighbours over the idleness, untruthfulness, and depravity of many of the coloured people. "The settlements are not what they might be. The people prefer working for themselves in their own garden patches, to working for wages for farmers, who sorely need their labour, and who are justly entitled to have it. The labour, when given, is often uncertain and dishonest—not always a fair day's work for a fair day's wage. The people are often idle, and fonder of drink than of honest hard work," &c.

That much of the same kind might be said of labourers in almost any part of Europe is obvious; but contrast the least favourable account which can now be given with the most favourable accounts of earlier travellers. In the style of their habitations and dress the change has been from barbarism to civilization, from the almost indiscriminate herding of naked or half-naked savages to decent houses, habits, and dress. Life and property are as secure as in Europe, and if untruthful or dishonest persons are frequently found, how great is the change from the time when truth and honesty were so rare as to enable many harsh judges to say they were unknown!

Let me here quote the testimony I received from a railway engineer, who had many years experience as an employer of unskilled labour out of England,—in Europe, Asia, and America, as well as in Africa. Giving the first place to the English navvy, with no other reservation than that he must be habitually sober, he said he could generally, in a few weeks, train "raw" or fresh Kaffirs to do as much work for the same amount of money as the English workman—not that any one Kaffir would do as much work, or as well as an English navvy, but that receiving lower wages, the Kaffir could be taught to do as much for the money as an Englishman would. But the best of all his African workmen, he said, were the men from Mamre or Gnadendhal Moravian Mission stations, "off-coloured boys," of Hottentot stock; they were well-trained, sober, steady, and intelligent, quite as able to understand, and as trustworthy to execute work as any but good English navvys.

In many parts of the old Colony this class of natives has acquired property in lands and houses, and their conduct would often be a credit to any class of yeomanry or peasant proprietors in our own country.

Mixed up with the Hottentots, are often the descendants of slaves of African origin. The liberty given to them half a century ago was doubtless a fatal gift to many of the less provident and civilized of this class. But as a body they have prospered and improved.

I may here draw attention to the great and manifest improvement apparent outside the Colony in emancipated slaves, after a few years of freedom and civilized training. I have had several opportunities of inspecting a batch of slaves in India and Eastern Africa soon after their capture, and of witnessing the gradual improvement which has taken place during subsequent years of freedom, and of exposure to various civilizing influences. There is far more than mere improvement in physical condition. The type of man is visibly changed, and assimilated to that of superior races in the grade of civilization.

I have never seen any limit to the improvement of which the Kaffir race is capable, nor any reason to suppose that there is any limit beyond which improvement is impossible or even doubtful. The touching biography of Tyo Soga depicts, perhaps, an extreme case; but I saw and heard enough in the country of his birth to feel assured that the picture is not overcharged nor incorrect, and that this was not an exceptional instance.

To raise a people requires something more than a multiplication of individual cases of improvement, but there are no impossibilities to the race to which he belonged, and in which men of natural capacity equal to his are not uncommon.

What, then, is required to give to such men a fair chance of improving themselves, and of helping to raise and improve their fellows?

1. First there is a need of a strong and stable Imperial Government able to protect life and property, and to enforce law and ensure a reasonable certainty of peace, not depending on the life or the will of a single chief.

Such a Government was unknown to South African history before the advent of Europeans. It has always existed more or less in every English Colony.

Such rule as the Romans always aimed at, and the English have been wont hitherto to secure to their subjects, is the first requisite to preserve the numbers and improve the conditions of the native races.

2. Freedom from slavery, and equality in civil rights before the law is essential to any permanent improvement of native races.

3. It is nearly self evident that neither of these requisites can be secured unless it be first settled whether the moral and social as well as the political standard is to be that of the European Colonist or of the native tribe. Not only have the essential pre-requisites as above defined never existed anywhere under any native rule, but they are clearly incompatible with it.

This question has been practically determined wherever the rule of England prevails, and hence follow the consequent conditions of—

4. Education according to English standards, a condition which has been supplied in various degrees both by the various Governments of the different British Colonies, and yet more extensively and completely by the various missionary bodies at work in South Africa.

There are two most important branches of the conditions I have specified of which we must not lose sight—

(*a.*) The first belongs to the necessity for a Government able to protect person and property. Such a Government cannot exist unless it has the exclusive power of making war and peace. Nor can such exclusive power be effectively exercised unless the Government is able to prohibit private warfare being carried on, either by individuals or by small sections of the community, without the permission or authority from the general Government.

Hence sooner or later arises the necessity for measures of disarmament, or for the prohibition of carrying arms in public without license from the Government.

Much unnecessary controversy has arisen about what is called "the policy of disarmament,"—a controversy which would never have arisen had it been borne in mind that the habitual carrying of arms *ad libitum* in public, naturally and inevitably carries with it the power to use such arms at will; and that if the individual will is directed by any authority save that of the Government, effective protection by the Government of the person or property of its subjects becomes difficult and ultimately impossible; an essential prerogative, necessary to the existence of any civilized Government, has, in such case, been transferred to the possession of individual subjects.

The other condition to which I would refer may be regarded either as a question of police—a branch of the essential condition of protection to person and property—or as a question of education. It is equally important in both aspects, and relates to the unrestricted use of intoxicating substances.

The importance of the subject will be self-evident if it is considered that in no civilized country is the manufacture and sale of intoxicating substances left absolutely free; whilst in

many countries possessing a high degree of very ancient civilization such manufacture and sale, except for medicinal purposes, is absolutely prohibited.

The question is of extraordinary importance in South Africa, where the Government is not always strong enough to do what is, in the abstract, best, if its action would conflict with powerful interests; and where no doubt the evil of unrestrained use of intoxicating liquors is more pernicious to the native races than to Europeans, and is by itself, in the opinion of many, sufficient to destroy a whole race, as it has done in other countries.

I have given reasons for doubting whether this is the case as regards the Kaffir races, but there can be no doubt that of all the evils we can inflict on the native races, none can well be greater than the introduction of European means and habits of intoxication; and that our action in introducing them is sufficient to counterbalance all the benefits of civilization which we can confer on them.

The question is one of great difficulty as well as of great importance, and I cannot do better than refer those who take an interest in it to a masterly speech of Mr. Sprigg, the late Premier of the Cape Colony, which they will find printed in one of the late South African blue books.

In securing the conditions necessary to improve the condition of natives in contact with Europeans, by such measures as I have described, it is essential that the superior Government should possess an adequate revenue to meet the inevitable expenses of protecting person and property, and enforcing law. The native community must itself supply the means, and it is to be regretted that any doubt should ever have been raised as to the ease with which this may be effected, without causing any of the popular discontent apt to follow the imposition of new taxes.

Time does not admit of my doing more than allude to the example set by the Native administration of Natal in this matter.

It used to be said in Natal that every hut had among the fowls one which was known as "Somtsu's hen" (Sir T. Shepstone), whose eggs sufficed to pay the hut-tax; whatever foundation there may be for this story, there can be no doubt that the Natal hut-tax was an extremely light contribution to the expenses of protection, as compared with the contributions in cattle, grain, and labour exacted by the most moderate of native chiefs. But light as the taxation was, it sufficed to cover the expenses of government. I have never heard an objection to this form of taxation, which was not traceable to the desire of the chiefs to retain their power of unlimited taxation.

The headmen of the kraals, as far as I could learn, were less apt to object to the Government impost.

Let me note in passing that direct taxation for the benefit of Government has a very considerable influence in superseding that authority of the great tribal chiefs, which it was the object of rulers like Chaka to destroy, and which is, in fact, in its unchecked exercise incompatible with the authority of any centralized Government. Indeed, it would not be difficult, did time admit, to show that in the great work of civilizing a South African Native community, taxation by Government exercises as great an influence as the security of individual rights in separate property and the enjoyment of good wages, which are among the most effectual practical means of promoting civilization in such communities.

Before quitting this part of the subject, referring to the extent to which the European races have checked the advance, and are more or less Europeanizing the native races, we ought to consider whether there is anywhere evidence of a reflex action on the European Colonists; whether the natives are anywhere pressing back the Europeans, or denationalizing them, or forcing them to conform to native authority and native ideas. Whether there is in South Africa any apparent possibility of the native races acting on the invading Europeans, as the northern barbarians of Europe acted on the Roman invaders in the decline of their empire, absorbing their civilization as well as their imperial power. Such a danger was apprehended by many acute observers from the Zulus before their power was broken, and it is clear that on the northern and north-eastern border of the Transvaal the European immigrants have not maintained the positions first taken up by the Trek Boers. They have been expelled from many districts they then occupied, and in others have been allowed to remain only on payment of tribute or black mail.

Again, in Damaraland, though a considerable influx of Trek Boers took place about nine years ago, and at various periods since, it has been doubted whether they can maintain their own complete independence, or the degree of civilization which their fathers had preserved.

It is not safe to predict results in such cases, but my impression is that the question is one of the comparative inherent vigour of the two races whose advanced guards are thus meeting. The Trek Boers, like the rest of the white colonists in South Africa, belong to the swarming European nations of northern Europe. They derive their impulse not merely from inherent love of independence or of change, but from the pressure outwards always felt by nations in the

swarming or emigrant stage of existence. Emigration to South Africa may be checked or diverted to Australia or America; but it will not cease. The advanced guard of Trek Boers may advance too fast, and be repulsed or absorbed in the vast native populations on whose territories they have intruded; but there is an impulse behind which will impel others onwards to support them, and to fill their places; and as long as their parent race retains its inherent vigour, and the civilization which gives it the superiority over other equally vigorous but uncivilized races, and as long as it continues in the swarming stage, so long the ultimate result will always be that the European invader will prevail over the native occupants, and expel, subdue, or assimilate the weaker race.

It may seem strange that I should hitherto have said but little directly on the influence of missions in altering the physical intellectual, or moral condition of the native races.

This has not arisen from any doubt whether a discussion regarding the effects of missions would be appropriate in a lecture delivered before this Institute, but simply from the fact that, in South Africa, at all events, the missions of the various Christian churches embody, in the most concentrated and active form, all the most efficient European influences at work to change the character of native existence.

It is otherwise in India, where the existence of powerful, active, and ancient forms of religious belief greatly restrict the dominant European race in the use of any but secular influence and teaching, and render the teaching of the missionary something apart and distinct from the teaching of the secular ruler. No such restriction exists in South Africa. The European government there, as elsewhere, refers for its code of principles of action to the same documents which contain the moral precept as well as the religious beliefs of European nations; and the European missionary is not only in general the person best able to instruct his native pupils in the contents of those documents, but he is in most cases the only European to be found whose direct business it is to impart such instruction.

The Government official in Africa or in India may expound and apply the law when malefactors or litigants appear before him, but it is no part of his direct duty to train those subjects to his authority to understand or obey the law, and this function necessarily falls almost exclusively on the missionary, whose teaching may be taken as the only practical embodiment of European law and principle which is accessible to the natives.

Of other results of religious teaching further than they affect the physical condition and moral and intellectual status of the pupil, this is not the place to speak; I need only say that no

educated Englishman who has seen much of educated Kaffirs is likely to doubt that the race possesses at least as much aptitude for receiving and analysing such truths and as good a chance of moral and intellectual growth under such teaching, as the captives at Rome who are said to have moved the compassion of St. Augustine.

What then—to sum up—are the laws or invariable facts affecting the relations between civilized and savage life, as bearing on the dealings of Colonists with Aborigines, as we may gather them from our experience in South Africa?

1. That it is possible for the civilized to overcome and destroy by war the uncivilized and savage race—to expel or drive them back—or to turn them aside in their migrations, admits, I think, of no doubt. In such contests the civilized power, if vital and growing, must in the long run prevail.

2. That simple proximity of the civilized to the uncivilized race has led, or is leading, to the extinction of the savage race, seems probable in the case of the Bushmen—is very doubtful in the case of the other Hottentot or tawny-skinned races, and clearly has not occurred and is not likely to occur in the case of the Bantu family—the Bechuana, the Zulu, and the Kaffir races.

3. That the changes which have occurred in the native races, consequent on the proximity of European colonists, are an advance in civilization and approximation to the types of European civilization—marked in the case of the Hottentot, but yet more marked and rapid in the case of the Bantu races, and that there seems to be no practical limit to the changes which may thus take place.

4. That the essentials necessary to such development are—

(*a.*) Such a peace as the Romans and the English elsewhere have ensured to subject races, as a consequence of civilized sovereignty—a peace bringing with it—

(*b.*) Protection for life and property, and practical equality before the law, leading to a substitution of individual property for tribal commonage, and involving logically the abolition of slavery and of all sale of man or womankind; also of private rights of making war, and consequently of carrying arms, except under authority of the supreme ruler.

(*c.*) Power of local legislation for the purpose of securing the objects enumerated, such legislation to be directed on the principles recognised in civilized European countries with a view to secure education in the arts of civilized life, and in such knowledge as forms the strength, and furnishes the rewards of civilization.

(*d.*) Legislation should also be directed to place such restrictions on the manufacture and sale of intoxicating substances as are

needed to prevent their ruining the health and rettarding the material welfare of the native community.

(*e.*) To secure all these objects an equitable form of civilized taxation is needed, sufficient to meet the expenses of administration.

Discussion.

Mr. John Evans expressed his thanks for the Paper, in which, besides the immediate subject-matter, there were so many interesting details with regard to the various races now occupying South Africa. He was glad to hear the references to the practice of ancient Rome, with regard to the foreign countries brought under her sway. It was, indeed, her special gift "to spare the subject and repress the proud." He could not, however, quite agree with the author in placing the ancient Britons, when first brought in contact with Rome, on the same level as any of the natives of South Africa when first exposed to European influences. Long before the time of Julius Cæsar the Britons had commercial relations with Gaul, and for nearly two centuries they had possessed a coinage. During the ninety years which elapsed between the invasion of Julius and that of Claudius, they made further progress in civilization, became acquainted with letters, and built important towns. It was also to be borne in mind that, though foreigners, most of the nations who came under the Roman dominion were practically members of the same great Aryan family, and did not differ from them in anything like the same degree as the coloured races of South Africa do from Europeans. He quite agreed with the general views expressed by Sir Bartle Frere at the end of his Paper—but to ensure the progress of civilization among those brought in contact with our colonists, not only was peace a necessity, but time during which new ideas might take root. It was to be regretted that so much mischief was frequently done by the force of bad example, but still the careful administration of justice in a Colony, the obedience to law, and the general regard for morality, could not but have their effect. A firm adherence to fixed principles, and an absence of vacillation and change when treating with savage nations, appeared to him to be of the highest importance, and looking at the widespread influence of this country throughout the world, he trusted it might always be for good, and that Britain had yet a glorious mission of civilization before her.

Mr. F. Galton would refer first to the purely ethnological part of the memoir, which dwelt upon the difficulty of defining the Bantu race. He thought that ethnologists were apt to look upon race as something more definite than it really was. He presumed it meant no more than the average of the characteristics of all the persons who were supposed to belong to the race, and this average was continually varying. The popular notion seemed

based upon some idea like that of a common descent of the different races, from a parent Noachian stock, whence the aborigines of each county were derived, and where they lived in unchanged conditions till the white man came. Nothing can be further from the truth. We know how in South Africa the Bantu population has been in constant seethe and change; how, in much less than a single century, Chaka and his tribe, Mosilekatse and his tribe, and others, have in turn become prominent nations, and the average of the whole Bantu population must thereby have differed at different times. This same fluctuation of the average qualities of the population must, for anything we can see to the contrary, have gone on for many thousands of years. He therefore thought the phrase of Bantu race, as signifying some invariable and definite type, to be a mere chimera. In the earlier part of his memoir, Sir Bartle Frere had compared our mode of treating uncivilized races to that of the Romans. He heartily wished that the resemblance held in certain essential points. Our military hold was as firm, our tolerance of local customs was as great, our dealings were as just, and more just than theirs. But we did not amalgamate with them as the Romans did, we did not intermarry; by means of our missionaries we pressed upon them a form of religion which was not the most congenial. Our civilization was stiff. This, and much more, was pointed out in a very able and most pathetic memoir by Mr. Blyden, the present Minister of Liberia to England, who is a full-blooded negro. The article appeared in "Frazer's Magazine" some years ago, and it showed the repressive effect of White civilization upon the Negroes, as contrasted with that of the Mohammedans. It was a shame to us as an Imperial nation, that representatives of the many people whom we governed, did not find themselves more at home among us. They seldom appeared in such meetings as the present one; they did not come to England. We did not see them in the streets. It was very different in ancient Rome, where the presence of foreigners from all parts of the then known world was a characteristic feature of every crowd. He did not now suggest any action, but merely wished to lay stress on this serious drawback to our national character as rulers of a great Empire. He thought they were greatly indebted to Sir Bartle Frere for introducing to public notice so important a subject as the best form of conduct of civilized races towards their less civilized neighbours, and he trusted that it would meet with that full and many-sided discussion which so important a question deserved.

Professor FLOWER remarked that the results of the contact of one race with another were greatly affected by geographical or climatical conditions. In all temperate climates, where Europeans established themselves, the natives disappeared, the process being much more rapid in the case of islands than upon continents. In tropical climates, unsuited to the permanent residence of Europeans, the native races retain their numerical supremacy. The degree of

relationship between the different races spoken of must also be taken into consideration. The ancient Britons and the Romans, though in a different condition of culture, were closely related, and there was no difficulty for the one to adopt the civilization of the other, but with the English and Zulus, and still more with the English and Australians and Tasmanians, the relationship is far more remote. Such considerations should give greater importance to the study of anthropology by statesmen and colonists than has hitherto been accorded to it.

Sir RICHARD TEMPLE and the PRESIDENT also joined in the discussion, and Sir BARTLE FRERE briefly replied.

On the motion of Professor FLOWER, seconded by Mr. RICHARD BIDDULPH MARTIN, M.P., a vote of thanks was unanimously carried to the PRESIDENT and to Mrs PITT RIVERS for their kindness in inviting the members of the Institute to hold the meeting at their private residence.

ANTHROPOLOGICAL MISCELLANEA.

Non-Mussulman Arabs.

To the Editor of the Journal of the Anthropological Institute.

Sir,—I infer from the remarks made by Mr. Bouverie-Pusey on my paper "Notes on the Origin of the Malagasy," published in the last number of the "Journal," that he supposes all Arabs in the eighth century to have been Mussulmans. This opinion is erroneous. M. Vivien de Saint Martin, in his "Nouveau Dictionnaire de Géographie Universelle," *Art.* "Arabie," after stating that the Bedouins still retain reminiscences of their ancient Sabaism, remarks, "Il y a même dans les montagnes du Hedjaz méridional, entre la Mekke et le Yémèn, des tribus chez lesquelles l'Islamisme n'a pénétré qu'avec la conquête onahhabite, au commencement du siècle." The territory between the Hedjaz and Yemen is inhabited by a large number of independent tribes, and the same appears to be true of the Hadramaut and Mahra, between Yemen and Oman. M. Saint Martin says, as to the inhabitants of this territory, "Entre le Yémèn et l'Omàn, existe une population inculte, presque complétement isolée du reste de l'Arabie sans aucun commerce avec les étrangers," and he supposes them to be remnants of the ancient population of the country—Cushites or Ethiopians—referred to by Arab tradition as the people of Ad. This ancient race was thought to have become extinct before the establishment of the Joktanite Arabs in the Peninsula, and, according to the Koran, it was destroyed by God for its idolatry. As these *Aribah* of the southern coast continued to exist, it is extremely probable that Sabaism, with many of its superstitious customs, lingered among them for centuries after the establishment of Mohammedanism in other parts of Arabia. Even the Arabs of Oman appear to have retained a remembrance of the ancient planetary worship; and the occult sciences, particularly the science *sihhr*, or sorcery, to which Mr. Dahle traces the Malagasy *sikidy*, is still cultivated among them.—Yours, &c.,

C. Staniland Wake.

13*th January*, 1882.

The Hon. Lewis H. Morgan.—The scientific world, and especially American anthropologists, are mourning the loss of one who did much to make anthropological research popular among his own

countrymen, and to extend the knowledge of the manners and customs of the American Indians over the whole world. The Hon. Lewis H. Morgan died at Rochester, U.S.A., on December 17, 1881, aged 63. Mr. Morgan's researches into the history of the various tribes of American Indians, with kindred observations collected by him from various sources in different parts of the world, were published by the Smithsonian Institution, under the title of "Systems of Consanguinity and Affinity of the Human Family." His great work, "Ancient Society," was published in 1877. In this he treats: first, of the growth of intelligence through inventions and discoveries; secondly, of the growth of the idea of government; thirdly, of the growth of the family; and, fourthly, of the growth of the idea of property.

His last book, "House Life and Architecture of the North American Indians," just published by the Smithsonian Institution, was placed in his hands only a few days prior to his death, when, says the chronicler, "he feebly turned the pages, and as feebly murmured, 'my book,'" and this was almost his last intelligent act, whilst his last public appearance of moment was in the capacity of President at the Boston meeting of the American Association for the Advancement of Science.

Mr. Morgan was also known as a naturalist, and his work on "The American Beaver" is one of great scientific value.

A. W. Buckland.

Traditional Origin of Grass Aprons.

Aprons of grass form to this day the only clothing of the daughters of Eve in a district near the Travancore backwater. "The leaves of a certain water-plant are cut into lengths of a foot long and tied round the waist in such a fashion that the strings unwoven hang down in a bushy tail behind and present the same appearance in front reaching nearly to the knees. This is accounted for by a tradition that in former days a certain high caste man of that region had been sewing various grains and planting vegetables in his field but had found out that his daily work was in some unknown way frustrated, for whatever he planted or sowed in the day was carefully picked up and taken when men slept. So he set a watch and one night he saw, coming out of a hole hitherto unknown to him, certain beings like men, but quite naked, who set to work destroying his hopes of a crop. Pursuing them he succeeded in catching a man and woman, and he was so impressed with shame at their condition that he gave the man his own upper cloth which was hanging on his shoulder and made him put it on, but not having one to spare for the woman she (following Eve's example) made herself an apron of grass as above described."—*Madras C. M. Record.*

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THE JOURNAL

OF THE

THROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

NOVEMBER 8TH, 1881.

ssor W. H. FLOWER, LL.D., F.R.S., *Vice-President, in the Chair.*

e Minutes of the last meeting were read and confirmed.

e following presents were announced, and thanks voted to spective donors:—

FOR THE LIBRARY.

n JOHN COLE, Esq.—Saint Augustine. A Poem. By the late H. W. Cole, Q.C.

n Rev. F. A. ALLEN.—Relaciones Geográficas de Indias: Perú.

n the GOVERNMENT OF THE PUNJAB.—Glossary of the Multani Language compared with Punjábi and Sindhi. By E. O'Brien.

A complete Dictionary of the terms used by Criminal Tribes in the Punjab. By Muhammad Abdúl Ghafúr.

A Sketch of the Changars and their Dialect. By G. W. Leitner, LL.D.

A Detailed Analysis of Abdúl Ghafúr's Dictionary of the terms used by Criminal Tribes in the Punjab. By G. W. Leitner, LL.D.

n the GOVERNMENT OF MADRAS.—Administration Report of the Government Central Museum for the year 1880-1881.

From the AUTHOR.—The Cycle of Development. By Hodder M. Westropp.
—— La Place de l'Anthropologie dans les Sciences. By Dr. Dally.
—— Extrait du Dictionnaire Encyclopédique des Sciences Médicales. Article Craniologie. By Dr. Dally. Article Femmes. By Dr. Dally.
—— Die Schädelform der Griechen. By Dr. A. Weisbach.
—— Drei Schädel aus Römergrabern bei Metz. By Professor Schaffahausen.
—— Der neunte internationale Congress für prähistorische Anthropologie und Archäologie in Lissabon, 1880. By Professor Schaaffhausen.
—— Die Anthropologie auf der Versammlung der British Association in Swansea, 1880. By Professor Schaaffhausen.
—— A New Afghan Question, or are the Afghans Israelites? By Surgeon-Major H. W. Bellew.
—— The Manuscript Troano. By Professor Cyrus Thomas.
—— Pliocene Man in America. By James C. Southall, A.M., LL.D.
—— The Adoption of a Prime Meridian to be common to all nations. By Sandford Fleming, C.M.G.
—— Les Instruments en pierre a l'époque des métaux. By Le Baron J. de Baye.
—— Sul peso del cervello dell'uomo. By Giustiniano Nicolucci.
—— Ueber die Weddas von Ceylon und ihre Beziehungen zu den Nachbarstämmen. By R. Virchow.
——Caer Pensauelcoit, a long lost un-Romanised British Metropolis. By Thomas Kerslake.
From the SMITHSONIAN INSTITUTION.—Smithsonian Contributions to Knowledge, Vol. xxiii.
—— Smithsonian Miscellaneous Collections, Vols. XVIII-XXI.
—— A Memorial of Joseph Henry.
—— Anthropological Investigations during the year 1879.
From the LEWISHAM and BLACKHEATH SCIENTIFIC ASSOCIATION.—Report of the Committee for the Exploration of the Subsidences on Blackheath, July 1881.
From the SOCIETY OF ANTIQUARIES.—Archæologia, Vol. XLVI.
From the BERLIN ANTHROPOLOGICAL SOCIETY.—Zeitschrift für Ethnologie, 1881. Hefte 3, 4.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Archiv für Anthropologie. Band XIII, Part 4.
—— Correspondenz Blatt. Nos. 7-10.
From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, October 1880, January 1881.
——Report and Transactions of the Devonshire Association for the Advancement of Science, Literature, and Art. Vol. XIII.
—— Proceedings of the Geologists' Association. Vol. VII, No. 2.
From the INSTITUTE.—Transactions and Proceedings of the New Zealand Institute. Vol. XIII.

From the INSTITUTE.—Proceedings of the Royal Colonial Institute. Vol. XII. 1880-81.
—— Proceedings of the Canadian Institute. Vol. I, Part 2.
From the INSTITUTION.—Journal of the Royal United Service Institution. Nos. 111, 112.
From the CLUB.—Proceedings of the Berwickshire Naturalists' Club, 1880.
—— Transactions of the Epping Forest and County of Essex Naturalists' Field Club. Vol. II, Part 4.
From the MUSEUM.—Fourteenth Annual Report of the Trustees of the Peabody Museum, 1881.
From the ACADEMY.—Nova Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ Naturæ Curiosorum. Tom. XLI, Parts 1, 2.
—— Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, Tom. XXVII, No. 3.
From the SOCIETY.—Journal of the Society of Arts. Nos. 1493-1511.
—— Proceedings of the Royal Geographical Society. Vol. III, Nos. 7-11.
—— Journal of the Royal Geographical Society, 1880.
—— General Index to the fourth ten volumes of the Journal of the Royal Geographical Society.
—— Classified Catalogue of the Library of the Royal Geographical Society to December, 1870.
—— Proceedings of the Asiatic Society of Bengal, 1881. Nos. 4-8.
—— Journal of the Asiatic Society of Bengal. Vol. L, Part I, No. 2; Part II, No. 2.
—— Proceedings of the Ceylon Branch of the Royal Asiatic Society. 1875-1880.
—— Journal of the Ceylon Branch of the Royal Asiatic Society. Vol. VII, Parts 1, 2.
—— Transactions of the Asiatic Society of Japan. Vol. IX, Part 2.
—— Journal of the Royal Asiatic Society. Vol. XIII, Part 4.
—— Proceedings of the Royal Society. Nos. 213-215.
—— Proceedings of the Royal Society of Edinburgh, 1878-79, 1879-80.
—— Monthly Notices of Papers and Proceedings and Report of the Royal Society of Tasmania for 1879.
—— Annual Report of the Leeds Philosophical and Literary Society, 1880-81.
—— Transactions of the American Philosophical Society. Vol. XV, Part 3.
—— Proceedings of the American Philosophical Society. Vol. XIX, Parts 107, 108.
—— Bulletin de la Société de Borda à Dax, 1881, Parts 2, 3.
—— Transactions de la Société Impériale des Amis d'histoire naturelle. Tom. XXXVII, Sup. 1, Tom. XL.
—— Bulletin de la Société Impériale des Naturalistes de Moscou. 1880. Nos. 3, 4.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris, 1881, Nos. 1-5.
——Dritter Jahresbericht des Vereins für Erdkunde zu Metz pro. 1880.
—— Boletim de Sociedade de Geographia de Lisboa. 2ª Ser. Nos. 5, 6.
From the CONDUCTOR.—The Scientific Roll. Part I. No. 4.
From the EDITOR.—Journal of Mental Science, N.S., No. 82.
—— "Nature." Nos. 609 to 626.
—— The Chrysanthemum. Vol. I, No. 6.
—— Revue Scientifique. Tom. XXVIII, Nos. 1 to 14, 16 to 19.
—— Matériaux pour l'histoire de l'homme. Tom. XII; liv. 6e, 7e.
—— Revue d'Anthropologie, 1881, No. 4.
—— Revista di Filosofia Scientfica, 1881, No. 1.

It was announced that the following had been elected Members of the Institute:—

Dr. JOSEPH MAJER, of Cracow, as a Corresponding Member; and Miss LYDIA BECKER, Mrs. R. CRAWSHAY, Mrs. LLOYD, Miss ELEANOR E. SMITH, Miss WOLFE, Prof. H. ACLAND, M.A., M.D., LL.D., F.R.S., Jas. BACKHOUSE, Esq., W. BOWMAN, Esq., F.R.S., A. T. BRETT, Esq., M.D., Rev. H. CANHAM, B.C.L., J. G. GARSON, Esq., M.D., Hugh T. HALL, Esq., Captain HOZIER, W. J. KNOWLES, Esq., E. LLANFAIR LEWES, Esq., ALFRED LINGARD, Esq., M.B., G. D. LONGSTAFF, Esq., M.D., F.C.S., W. PARKIN, Esq., H. SEEBOHM, Esq., F.Z.S., M. STIRRUP, Esq., H. STOPES, Esq., F.G.S., R. THOMPSON, Esq., and Professor E. PERCEVAL WRIGHT, M.A., M.D., F.L.S., as Ordinary Members.

Dr. J. G. GARSON exhibited some improved forms of Anthropometric Instruments, upon which Professor FLOWER and Mr. G. M. ATKINSON made some remarks.

The following paper was then read by the author:—

On the ANIMISM *of the* INDIANS *of* BRITISH GUIANA.

By EVERARD F. IM THURN, Esq.

1. THE word "animism" was first brought into prominence by Mr. E. B. Tylor to express that belief in the existence of spirits which, under many different forms, is shared by all men, both savage and civil. Careful study of the particular form of animism which prevails among the Indians of British Guiana and comparison of this with the simpler, the similar, and the more developed forms of the same system of belief which occur among

the various Indians of the east of America seems to show that all these forms differ from each other, not in kind, but only in the various degrees of their development. The particular form which occurs in Guiana, though not of the most, is yet of a very primitive order; and it is therefore worthy of study as the germ, in a very early stage, from which the higher forms of animism have developed. Again, animism itself has been said to be the simplest form of religion, the germ from which all higher religion has sprung; and the mass of evidence in favour of this theory grows daily larger. It is at least certain that animism is among certain men in a primitive stage of savagery all that represents religion, and this is so among the Indians of Guiana, wherever the highly elaborated doctrines of civilised religion have not been forced into their unprepared minds. Moreover, animism is extremely interesting, not only in its relation to religion, but also because it explains, or at least throws light on the whole behaviour and habit of the primitive men who have no further religion; the whole social system of people so situated depends, when unaffected by European influence, upon their animism. For these reasons I propose to describe, as completely as may be, the animism of the Indians of British Guiana.

2. It need hardly be said that the man who above all others has made this study possible is Mr. Tylor. It is more necessary to add that, quite recently, and after I had gained my own personal experience of Indian habits of thought, I have derived considerable countenance from Mr. Rushton Dorman's book on "The Primitive Superstitions of the Aborigines of America." From that book I learned much. It is especially valuable in that it proclaims the true nature of that puzzling mass of supposed Red Skin religion which is really not of genuine American origin, but has been built up by the misunderstandings of prejudiced European missionaries and early travellers among the Indians. These observers constantly fancied traces of the doctrines of their own higher religion in the folk-lore of the Indians; and even, not unfrequently, they themselves first taught some doctrine or fact which, when afterwards reheard from Indian lips, transformed as it naturally must have been in the mind of the untutored savage, they failed to recognise as their own teaching, and thought they had discovered a doctrine or fact of genuine Indian origin. To give Mr. Dorman's own chief example of this source of error and confusion in the study of Indian animism, the far-famed "Great Spirit," or supreme god of the Indians, is almost certainly nothing more than a figure of European origin reflected and transformed almost beyond recognition in the mirror of the Indian mind. Yet while agreeing with the fun-

damental idea which underlies Mr. Dorman's book, it is impossible to agree with many of its details. Upon one of these points of disagreement I dwell especially, because it seems to me that it forms one of the greatest remaining obstacles to the proper study of the simple forms of animism held by savages. I allude to the constant unguarded use which, in describing animism, he, in common with other writers on the same subject, makes of terms which, having been, as it were, consecrated by their use in connection with the higher religions, have thus acquired inseparable meanings which make them most inappropriate to the description of animism. The point will be best explained by examples. Among these terms are "gods," "worship," "the resurrection of the body," "the Creator:" all of which, with many others, have, owing to their use in the language of the higher religions, acquired special meanings expressive of certain ideas which belong to these higher religions, but are entirely wanting in the lower, that is in animism, or at least in the lower forms of animism. Consequently their use to express other ideas which do occur in the lower religions is most confusing and a hindrance to study. The Indian in the lower stages of culture has an idea of the existence of beings other than those which we call animals, but has no idea of any beings with the attributes of gods. In other words, the beings which fill the Indian universe work, as will presently be shown, only according to natural laws, or rather, according to what seem to the Indian natural laws, and are not, as are gods, capable of supernatural action. When, therefore, Mr. Dorman uses the term *gods* of the beings who, because of their brute power, are simply feared by the Indians, totally erroneous ideas are suggested to the reader. The term worship is similarly misused. The Indian of low culture does not worship. For example, in Guiana no Indian worships, though in a few cases, presently to be described, he avoids certain merely dreaded beings, or, if avoidance is impossible, he strives to frighten and drive them away. Again, when Mr. Dorman says that "the belief in the *resurrection of the body* was universal among primitive people," he makes a statement almost certain to be misunderstood; for the term "resurrection of the body" has acquired for us certain definite doctrinal associations, none of which belong to the Indian belief to which Mr. Dorman alludes. That belief is simply that there is an occasional, not universal as he intimates, return of the spirit to its body after it has, at its own pleasure and for its own purposes, left the latter. To quote one more instance, the term *creator* is one which expresses an idea undreamed by the Indians. For example, Mr. Dorman says that the cayote plays the rôle of the creator in the following legend: "He filled himself with

the water of Clear Lake, after eating a great quantity of grass-hoppers, and lay down to sleep, when he was thrust through with a spear, and all the water and grass-hoppers ran out and down into the lake basin, and the insects became fish." Here there is obviously no idea of creation but only of natural metamorphosis brought about by the habit of all beings to adapt themselves to new circumstances, that is, the grasshoppers finding themselves in the water began to swim, and so became fishes. And in another significant passage the same writer uses the terms "ancestor" and "creator" as synonomous; which, though a common mistake, is not only an abuse of language, but shows that the writer has not fully realised the fact that the Indian has no idea of a beginning of things, of a creation, but only what is a very different matter of an eternal change of bodily forms.

3. It is as well to begin the study of animism by putting aside, as far as may be, all that knowledge of the physical and metaphysical condition of the universe which, having been accumulated during many centuries by our civilised ancestors, has been naturally inherited by us, and to attempt to realise the view which Indians themselves take of the world around them. Only when this has been done is it time to attempt to inquire how the simple and natural thoughts which are held by the Indians, could have gradually grown into the complex system of religious thought of civilised men. I shall therefore try to draw a picture of the world full of beings among which the Indian of British Guiana sees himself living.

Every Indian believes that he himself, and consequently every other man, consists of two parts, a body and a spirit. To one who has never given thought to such matters it may seem strange that a so-called savage should be able to form for himself any conception of a thing so immaterial as a spirit. Yet a little thought brings conviction that it is impossible that man, being rational and having once seen death, should fail to acquire such conception. When a man dies something goes, something is left. The survivors necessarily distinguish in thought between these two parts, and they call them respectively by some such names as spirit and body. A curious illustration of this is afforded by a saying of the Macusi Indians of Guiana, as they point out that at death the small human figure disappears from the pupil of a man's eye, that the spirit, the *emmawarri*, as they call it, has gone from out of him. This alone is sufficient reason to the Indian for belief in the distinctness of body and spirit, as the two parts which separate at death.

But it is not only in death that the Indian sees the two

separate. It is a platitude among civilised people to remark on the similarity between "death and his brother sleep." But great as the similarity is to us it seems far greater to the Indian. To us the similarity lies merely in the fact that in both there is rest from the work of this life: but to the Indian it lies in the fact that in both the spirit departs from the body, only to continue its labours under hardly altered circumstances. The dreams which come in sleep to the Indian are to him as real as any of the events of his waking life. He regards his dream acts and his waking acts as differing only in one respect; that the former are done only by the spirit, the latter are done by the spirit in its body. When the Indian, just awake, tells the things which he did while asleep, his fellows reconcile such statements with the fact that the sleeper's body was in their sight and motionless during the time of supposed action, by the thought that the spirit of the sleeper left him and went out on its adventures. The complete reality of this belief in dream life and of the unbroken continuity of this with real life was forcibly exhibited in many incidents which came under my notice. For instance, one morning, when it was important to get away from a camp on the Essequibo River, at which I had been detained for some days by the illness of some of my Indian companions, I found that one of the invalids, a young Macusi Indian, though better in health, was so enraged against me that he refused to stir; for he declared that, with great want of consideration for his weak health, I had taken him out during the night and had made him drag the canoe up a series of difficult cataracts. Nothing would persuade him of the fact that this was but a dream; and it was long before he was sufficiently pacified to throw himself sullenly into the bottom of the canoe. At that time we were all suffering from a great scarcity of food; and, probably owing to the fact that hunger seems especially apt to cause such dreams, similar events very frequently occurred. Morning after morning, the Indians declared that some absent man, whom they named, had visited their hammocks during the night, and had beaten or otherwise maltreated them; and they always insisted upon much rubbing of the supposed bruised parts of their bodies. Another instance was amusing. In the middle of one night I was awakened by an Arawak named Sam, the captain or headman of my Indians, only to be told the bewildering words, "George speak me very bad, boss; you cut his bits." It was some time before I could sufficiently collect my senses to remember that "bits" or fourpenny pieces, are the units in which, among Creoles and semi-civilised Indians, calculations of money, and consequently of wages, is made; that "to cut bits" means to reduce the

number of bits or the wages given; and to understand that Sam, as captain, having dreamed that George, his subordinate, had spoken impudently to him, the former, with a fine sense of the dignity of his position, now insisted that the culprit should be punished in real life. One more incident of this same Sam may be told for the sake of its quaintness, though it did not happen within my personal experience but was told me by a friend in whose employ Sam was for a time. This friend told his men, as they sat round the camp fire one night, of the Zulu war, which was then in progress, and in so doing made frequent use of the expression "to punish the niggers." That night, after all in camp had fallen asleep, they were roused by loud cries for help. Sam, who was one of the most powerful Indians I ever saw, was found "punishing a nigger" who happened to be of the party; having with one hand firmly grasped the back of the breeches' band of the blackman, he had twisted this round so tightly that the poor victim was almost cut in two. When the two had been separated Sam sturdily maintained that he had received orders from his master for this outrageous conduct; and on enquiry it turned out that he had dreamed this. Many similar stories might be added; but enough has been said to exhibit the firm belief of the Indian in the separability of the spirit during sleep. It must be added that this belief extends, not only to the idea that the spirit of the dreamer leaves him and does various acts, but to the further idea that the spirits of others, of whom he dreams, are really, not merely subjectively, present; for the Indian who, as frequently happened, woke in the night uttering loud cries and assertions that he was being beaten by some enemy, was never convinced of the fallacy of his belief by the fact that neither was his enemy present, nor could he have escaped in so brief a time. To such representations the injured man invariably answered that it was not the body but the spirit of his enemy which did the harm.

Not only in death and in dreams, but in yet a third way, the Indian sees the spirit separate from the body. Visions are to him when awake what dreams are to him when asleep; and the creatures of his visions seem in no way different from those of his dreams. A distinction may here be drawn, though it is not recognised by the Indian, between natural visions—those, that is, which appear to a man in consequence of the abnormal condition in which his body accidentally happens to be at the moment—and artificial visions, which appear to a man in consequence of the abnormal condition into which he has brought himself, by such means as fasting and the use of stimulants or narcotics, for the express purpose of experiencing visions. Innumerable instances

of natural visions are recorded from all other parts of the world where men live in a similarly primitive state; and, judging by analogy, such must commonly occur to the Indians of Guiana. Few instances, however, came directly under my notice. The most striking was the following. One morning in 1878, when I was living in a Macusi village, a party of Indians of the same tribe with whom I had had some dealings, came from their neighbouring village with the extraordinary request that I would lend them guns and would go with them to attack the Arecuna Indians of a village some twenty miles distant. Though there is an unusually strong feeling of hostility between the Macusi and the Arecuna Indians, this request, remembering how peaceful the Indians now generally are, seemed to me very strange. It was explained that a certain man named Tori, one of the suppliants, had a day or two previously been sitting alone on the savannah outside his house, when, looking up from the arrow-head which he was fashioning, he found some Arecunas, whom he knew by sight, belonging to the village against which war was now to be waged, standing over him with up-lifted war-clubs, as if about to strike him down. Tori continued to explain, that his shouts bringing his own people out of their houses, the Arecunas vanished without doing any harm. The story was utterly incredible, but after much cross-examination it was evident that Tori himself believed it, and I can only suppose that it was a case in which a natural vision was believed as a reality.

Artifical visions are much more frequent in Indian life, especially in one particular connection. The *peaiman* or medicine man, the priest, doctor, sorcerer, and prophet of Indian society, prepares himself for his office by a long course of fasting and solitude, of stimulants and narcotics, in order to acquire both power to raise himself into an ecstatic condition in which he is able to send his spirit where he wills, and power to separate the spirits of other men and other beings from their bodies. Fully to explain the system of *peaiism* here would take too long. All that need now be said is that it is based upon the belief that all illness and all other bodily evil is the work of hostile beings, who may or may not live in the bodily shape of men. These hostile beings may act in their bodily shapes; but attacks by disease being much more common than assaults by actual bodily enemies, the spirits are supposed to act much more often by themselves. Against attack by hostile spirits the ordinary Indian cannot protect himself. The peaiman is, therefore, appointed to the office of dealing with these spirits; and it is obvious that his body would be rather a clog and a hindrance than an assistance to his spirit. His chief problem is, therefore,

to separate, firstly, his own spirit; secondly, that of the patient who is suffering attack; and thirdly, those of the attacking beings, each from its body; so that the whole matter may be settled among the spirits. His chief method of doing this may be shown as follows:—

A Macusi peaiman offered to cure me of a slight attack of fever and headache. At night I was made to lie in my hammock in a completely closed and darkened house; and I was especially warned not to put foot to the ground, for malicious beings would be on the floor, and would do dreadful things if they caught me. For a moment all was still. Then suddenly the silence was broken by a burst of undescribable and really terrible yells and roars and shouts, which filled the house, and shook the walls and roof, and sometimes rose rhythmically to a roar and sometimes sank to a low distant-sounding growl, but which never ceased for six whole hours. It was the peaiman roaring out his questions and commands to many hostile beings, any one of whom might be the one who had attacked me; and it was these beings, who were yelling and shouting, and growling their answers. When, now and then, the voice all but died away for a few moments, the peaiman had passed up and out through the roof, and was heard, far off, compelling unwilling beings to come to the house where I lay. As a matter of fact, the whole long terrific noise came from the throat of the peaiman, who had worked himself into a state of marvellous frenzy.

The effect of all this upon me was very strange. Before long I passed into a sort of doze and fitful sleep or stupor, probably akin to mesmeric trance. Incapable of voluntary motion, indeed unconscious of the existence of a body belonging to me, I seemed to float in the midst of a ceaselessly surging din; and my only thoughts were a hardly felt wonder as to the cause of the noise and a gentle, fruitless effort to remember if there had once been a time before noise began. It now seems to me that my spirit was really then as completely separated from my body as is possible under any other circumstances short of death.

That the peaiman himself believes in the separation and occasional departure of his own spirit from his body would not be easy to prove; but after much enquiry from these practitioners, I am fully persuaded that in this, as in so many similar cases, the man partly believes, partly feigns to believe, in his own practice. But—and this is the important point—that the other Indians believe in the departure of the spirit of the peaiman is certain; and that not the body is supposed thus to depart was made very plain in this way. Expressing scepticism as to whether the peaiman really went away through the roof, I on one occasion asked to be allowed to fasten one end of a thread to the

body of the peaiman, that, holding the other end in my hand, I might through the thread be satisfied of the occurrence. The answer—which was given quite naturally—was that the body remained; and that it was "something inside him" that went up.

All this shows that the Indian believes not only in the existence of a spirit within the human body, but also in the separability of those two parts.

The next point to be observed is how easily the spirit separates from the body even during life, how loose is the connection between the two. The being may pass its spirit from its own body into that of any animal or even into any inanimate object as a temporary body. This takes place especially in the case of *kenaimas*. The kenaima is the avenger of injury. In Indian society the mutual rights of individuals are guarded, and crime is kept in check, by the high sense of the imperative duty of retaliation. He against whom or against whose near relative wrong has been done, intentionally or unintentionally, by any other Indian becomes a kenaima who follows to kill or injure the wrong-doer. All injury which befalls an Indian is regarded by the sufferer as the work of a kenaima, as vengeance for some known or unknown injury committed by the sufferer. Now the kenaima, while following his intended victim, does not necessarily retain his own bodily shape, but assumes at his convenience the form of any animal or inanimate object. Very often the form assumed is that of the most dangerous animal known to the Indian, the jaguar, or, as it is locally called, the tiger. The expression kenaima-tiger is often heard from Indian lips, in such sayings as, "I can kill a tiger, but how can I kill a kenaima-tiger?" In that case the spirit of the kenaima puts itself into the body of another animal. Very often, also, it assumes some inanimate object as its body. For instance, the peaiman, in his capacity of doctor, extracts from the body of his patient a stick or stone, which is said to have been the cause of the disease, or, in other words, is the bodily form into which the spirit of the kenaima has passed in order to penetrate into the victim. It is true that apparently no individual Indian, unless, perhaps, a peaiman, believes that he himself can at will pass his spirit into another body—though, by the way, cases of this form of self-deception have been noted from other parts of the world. Apparently, however, the Indian of Guiana believes, not that this power of transmission does not exist within him, but only that he does not know how to exercise this power; and, fully recognising how loosely spirits are attached to bodies, he supposes that other men have the requisite knowledge which he has not.

4. So far we have examined Indian animism only as it is exhibited in a belief in the spirits of men. But the fact that I began by speaking of the spirits of men was only because man, whether he be Indian or other, naturally begins by thinking about himself; nor must the fact be understood to indicate that the Indian sees any sharp line of distinction, such as we see, between man and other animals, between one kind of animal and another, or between animals, men included, and inanimate objects. On the contrary, to the Indian, all objects, animate and inanimate, seem of exactly the same nature, except that they differ in the accident of bodily form. Every object in the whole world is a being consisting of a body and a spirit, and differ from every other object in no respect except that of bodily form, and in the greater or less degree of brute power and brute cunning consequent on the difference of bodily form and bodily habits.

Really to grasp this entirely natural conception of primitive man, the civilised student must make a great effort to forget for a time all that science, which is based on the distinguishing and the classification of differences, has taught of the differences between the objects which fill the world. It is very difficult to us to realise the Indian conception even of the identity in all but bodily form of men and other animals, and it is still more difficult to realise that the Indian conception is wider even than this, in that it admits of no difference, except again in bodily form, between animate and inanimate objects.

The very phrase "men and other animals" is too often loosely expressed as "men and animals," thus showing how far above other animals civilised men habitually think themselves. It is most important, therefore, to realise both how comparatively small really is the difference between men in a state of savagery and other animals, and how completely even such difference as does exist is ignored in the thoughts of savage men. On the one hand, the differences which really do exist, the mental potentialities, are just such as entirely escape the notice of uncivilised man. On the other hand, in skill, in cunning, in courage, in social morality, as based on fear and not on any knowledge of right, which are the chief things recognised and valued by the Indian mind, there really is no great difference between savage men and other animals. And it must be remembered, that almost every Indian knows the ways and cunning of the animals around him better than even the two or three civilised men most learned in such matters even guess them. To the ear of the savage, animals certainly seem to talk. Countless Indian stories, fully believed, introduce the sayings of animals. And though the individual

Indian knows that he no longer understands the language of the beasts and birds around him, he attaches but little weight to this, in that he is constantly meeting with other Indians, of some one or other of the many alien tribes which surround him, who speak languages at least as unintelligible to him as are those of birds or beasts; and in that, as he is fully persuaded, he constantly hears his own peaiman still converse with these birds and beasts. Moreover, just as the Indian sees in the separation which takes place at death or in dreams proof of the existence of a spirit in man, so in this same death analysis of body and spirit, and in the animals which play their part in his dreams, he sees proof of the existence in each animal other than man of a spirit similar to his own.

The mental attitude which sees a spirit in each inanimate object is less easily realised. Belief in the spirits of plants is probably closely connected with the similar belief concerning animals; there is a vitality in plants which disappears at death, and this vegetative life is evidence of the presence of a spirit. There is not the same evidence of the presence of spirits in such objects as rocks and stones, in which neither animal nor vegetative life is manifested. It might be thought that this bodily motionlessness would prevent any conception of the possession of spirits by such objects. But to the Indian mind this absence of motion is less striking than it would otherwise be, owing to the fact that the comparison is made, not directly between animals, with their most free power of bodily motion, and rocks and stones, with no such power of motion, but indirectly through plants which are intermediate in this respect in that, their branches swaying, they have some small apparent power of bodily motion. Moreover, the Indians, always reasoning in the first place from what he knows of himself, remembers that, as, for example, in dreams, his own spirit moves most actively even when his body lies motionless; and he therefore sees no reason to doubt that the spirit within the motionless rock is active also. And the activity of this spirit of the rock is proved to his satisfaction in various practical ways. The Indian is occasionally hurt either by falling on a rock or by the rock falling on him; and in either case he attributes the blame to the rock. In fact, he attributes any calamity which may happen to him to the intention of the immediate instrument of its infliction; and he not unnaturally sees a spirit in this instrument. Then he carries this line of argument yet further. If his eye falls on a rock in any way abnormal or curious—and none such escapes his notice—and if, shortly after, any evil happens to him, he regards rock and evil as cause and effect: and here again he perceives a spirit in the rock. In very dry

seasons, when the rivers are low, the exposed rocks are seen to have a curious vitrified, black appearance, due to deposits of oxides of iron and manganese. Whenever I questioned the Indians about these rocks I was at once silenced by the assertion that any allusion to their appearance would vex them and excite their hostility. Again, the many rocks on which are so-called petroglyphs, or rock-drawings, are regarded with especial awe. It is unnecessary to multiply instances, further than by saying that every rock and, indeed, every material object, however different its body, is supposed to possess a spirit such as that of man.

But after all such arguments as those just given, by which it seems probable that savage man strengthens his belief in the presence of spirits in all objects, are not primitive.

The belief of the primitive man in this universal possession of spirits is probably of a much more simple and natural kind. It was acquired by the Indian, not by asking himself which of the objects existing around him were animate, but rather by his never doubting that, like himself—like, that is, the only object known to him by personal experience—all other objects had bodies and spirits. In fact, the primitive idea naturally is that all objects are animate; and then, as scepticism begins to grow, and primitive men begins to question whether stones have spirits and power of action, then the more orthodox and conservative probably strengthen their faith in the old belief by such arguments as those given above concerning the apparent action of stones.

One other class of beings possessed of spirits must yet be added to complete the list of those which, to the Indian, fill the world. At present we have observed only such spirits as are embodied in objects, animate or inanimate, which really exist. But the Indian knows also of various beings consisting of spirits placed in such animal bodies as civilised men know to be fabulous. Perhaps the nature of these beings is best made clear by saying that they correspond very closely to the dragons, unicorns, and griffins, and to the horned, hoofed and tailed devils of our own folk-lore. Of this kind are, the "di-di," or water-marna, a being with a body not well described, who lives under water; the "ornar," a similar being, with a body said sometimes to be like that of a gigantic fish, sometimes like that of a huge crab, at other times to be of various other forms, but which also lives under water, especially in rapids and cataracts; and there are also various other not easily definable beings which are of this class. Their chief interest lies in the fact that in the Indian mind there is not the slightest distinction, except in bodily form, between these and all the other beings which have been

described. Our knowledge of the fact that the bodies of such beings do not really exist, inclines us to regard them as somewhat more supernatural. But this knowledge of ours is derived from science. The Indian, being without sufficient even of the rudiments of the scientific habit of thought, is as fully prepared to believe in the real, not supernatural, existence of a being as impossible as was ever fabled, as in that of animals most usual to him. In short, to the Indian, the only difference between these monstrous beings and all other beings is that, while he has seen the latter, he has not himself seen the former, but has only heard of them from others.

5. We have now reached a point at which it is as well to recall all that we have learned. The Indian believes that every object perceptible to his senses has a body and a spirit; he sees that the bodies of these differ very considerably in shape, and he has not the slightest reason to doubt the existence of bodies of quite infinitely various shapes. No idea of that which we call the supernatural is known to him. Thus his whole world swarms with beings. If by a mighty mental effort we could for a moment revert to a similar position, we should find ourselves everywhere surrounded by a host of beings, possibly hurtful, so many in number that to describe them as absolutely innumerable would fall ridiculously short of the truth. It is, therefore, not wonderful that the Indian fears to be without his fellow, fears even to move beyond the light from his camp fire, and, when obliged to do so, carries a fire-brand with him that he may have a chance of seeing the beings among whom he moves. Nor is it wonderful that occasionally the neighbourhood of their settlement seems to the Indians to become so oppressively full of gathering beings, that the peaiman, who has the power of fighting these beings, even when they are invisible, is employed to effect a general clearance of the air.

That is the simple form of animism which prevails among the Indians of Guiana; and it is almost certainly the same that has been held by every people while passing through a similar early stage of civilisation. It is the earliest recognisable rudiments from which, by subsequent modification and development, religion in all its higher forms has grown.

6. Animism, then, is recognition of the existence of spirits: and religion, to use the word in its widest sense, is the mental attitude which men hold toward these spirits. According as men take a more exalted view of the nature of spirits, their religion is of a higher order. Having already gained some knowledge of how far the Indians of Guiana recognise the existence of spirits, it now remains to examine their attitude toward these spirits. We shall find that the attitude is very

low; or, in other words, that religion among them is in one of its very earliest stages. It must, however, not be overlooked that religion may possibly have advanced, among the ancestors of some of the present Indian tribes, to a point higher than that at which it now stands; and that it has since reverted to an earlier form. It is quite possible, for example, that the old Caribs may have had a higher conception of spirits and of their own relation to the spirit-world than that which the Caribs of Guiana now have.

7. It will, perhaps, be easiest to proceed by examining how far certain of the chief modifications by which, among all more civilised societies, animism has developed in the direction of higher religion are discernible among the Indians of Guiana. These modifications are—(1) acknowledgment of the everlasting, as distinguished from the mere continued existence of the spirit after the destruction of the body; (2) a belief in a separate place of abode for the spirit when separate from the body; and closely connected with this, a belief in the reward or punishment of the spirit for the good or evil deeds which it did when in the body; (3) a belief, which has arisen but very gradually, in higher spirits, and eventually in a Highest Spirit; and (4) keeping pace with the growth of these beliefs, a habit of reverence for, and worship of spirits. All these additions to animism spring from germs which appear in early stages of civilisation, and grow as the people advance in other matters. We shall find that none of them have as yet made much progress among the Indians of Guiana.

It is as well here to state that the key to the whole matter, as regards these Indians, lies in the fact, to which allusion has already more than once been made, that these people look on the spirit-world as exactly parallel to the material world known to them. Spirits, like material beings, differ from each other only in—if the phrase is allowed—their varying degrees of brute force and brute cunning; and none are distinguished by the possession of anything like divine attributes. Indians, therefore, regard disembodied spirits not otherwise than they regard the beings still in the body whom they see around them.

8. There has been great confusion between, on the one hand, the simple animistic belief in the continued existence of the spirit after the separation of the body; and, on the other hand, the doctrine of the everlasting existence of the spirit which the higher religions have founded on that simple belief. The merely continued existence, for a period the duration of which the mind of the savage man makes no attempt to determine, is implied in simple animism. After death, as we have seen, the spirit appears in dreams to the survivor; and it is therefore believed

still to exist. Moreover, it would be a very unnatural thing if the primitive man had any idea of the annihilation of the spirit. That a thing the existence of which he has once seen should cease to exist, or that a thing should come into existence which just before had no existence, are both events which would be quite opposed to his simple conception of natural law. There are naturally many traces among the Indians of Guiana of a belief in the continued existence of the spirit. It is sufficiently indicated by their habit of burying their dead, with the hammock and possibly other utensils which the deceased used during life in their houses: for this indicates a belief that the dead man will still use his home and hammock. That the houses in which such burial has been made are then deserted by the survivors is due to the natural objection of the living to dwell among the dead. It is instructive to notice that the Indians of the savannah, whose houses are of a much more substantial kind than those in the forest, have relinquished their ancestral habits and bring their dead outside their houses, that they may not have to abandon buildings, the erection of which has cost so much labour. Yet neither these nor any other recorded facts indicate that the Indians realise that the existence of the spirit is everlasting. That is a doctrine which belongs to a very much higher stage of religion. And where missionaries and others claim to have discovered traces of it among the Indians, they have merely mistaken the quite primitive conception of the continuance of the existence of the spirit for the doctrines elaborated by civilised minds, of its everlasting existence. In this one particular point, therefore, the Indians of Guiana are yet in the simplest observable stage of animism.

The spirit continuing to exist after the separation of the body, the question naturally arises as to what, according to Indian belief, becomes of such separated spirits. This question when worked out during many ages by the methods of the higher religions finds its answer in heaven and hell, or, in other words, of a place of abode for such spirits away from the world, and of the reward or punishment of spirits in that place. But the Indians, having not yet begun to ask themselves that question, think that disembodied spirits remain, as before, on earth, unpunished and unrewarded. Sometimes there seems to be some idea of the transmigration of the spirit into a new body, as when the spirit of a deceased ancestor is recognised in a newborn child or in some other animal. Sometimes, again, the spirit is merely supposed to remain disembodied on earth. Yet Indians have some idea of a place above the sky, "a heaven, floored upon a firmament" (Tylor "Prim. Cult.," ii, 69). In their folk-lore mention is often made of such a place. For

instance, the Caribs say that they arrived in Guiana through a hole in the sky, from a place above. This place is more often mentioned as that from which men come, than as that to which they go; but the spirits of their hero ancestors are sometimes said by the Indians to have gone to this place. The spirits of Indians in general are certainly not supposed to go there. This is just one of the cases in which our own deeply engrained and popular notion of a heaven above the sky makes it difficult for us to realise the Indian conception. The Indian idea seems to me to be that beyond the sky, just as beyond the sea, there is nothing akin to our heaven, but another country just such as that in which they live. The ordinary Indian knows that he cannot go beyond the sea; yet he occasionally sees other men come thence, and he hears from these of lands beyond those waters impassable to him. So he sees an apparently firm sky, separated by an ocean of air impassable to him, to which, though he cannot go, he sees birds go, and even as he thinks, sees the spirits of his peaimen go, and which he therefore thinks is a country, just such as that he knows, and attainable under certain conditions. His legends tell him that men have before now climbed down by bush ropes or by tall trees from sky-land; and he thinks it quite possible that he or his fellows may some day find another tree piercing the clouds, or a high hanging bush rope up which he may ascend to skyland. In other words, his notion of going to heaven is, not by apotheosis but by entirely natural means of travel. This is another point in which missionaries and other early observers have unwittingly introduced much confusion; for they have misinterpreted facts until they thought that Indians believed not only in a heaven such as that of the higher religions, but also in the allotment in heaven, or in hell, which is below the earth as heaven is above, of reward or punishment. The matter is admirably illustrated by a passage from Rochefort, "Iles Antilles," p. 430, (quoted by Tylor, "Prim. Cult.," ii, 79), in which he says of the Caribs of the West Indies, who were the ancestors of those now in Guiana, that they thought that their brave men would live after death in happy islands with once hostile Arawaks as their slaves, but that the cowards of their own tribe would, on the contrary, serve the Arawaks in the barren land beyond the mountains as slaves. Read by itself this passage certainly seems to indicate that the Indians believed in a heaven and hell, and in retribution. But let us see what further light can be thrown on it. At the time when Rochefort wrote, the Caribs and Arawaks lived in a constant state of mutual hostility, and were really in the habit of enslaving each other, Moreover, there is strong reason to believe that the Caribs had at that time

already taken possession of the West Indian Islands, from which they had driven the earlier inhabitants, the Arawaks, to the mountainous mainland opposite. From the islands the Caribs were in the habit of making raids into the inhospitable country of the Arawaks whom, if successful, they brought away as slaves, by whom, if unsuccessful, they were retained as slaves. When, therefore, the Carib said that if he were brave he would live in happy islands with Arawaks for slaves, but that if he were a coward he would live beyond the mountains a slave to some Arawak, he was only describing as his notion of future life exactly the state of things to which he was accustomed in this life; nor did he indicate any conception of heaven, hell, or retribution after death. It must be added that the Indian notion which I have described of skyland, and that other notion that by his conduct when in the body he may himself effect the happiness of his spirit, are probably primitive germs from which the higher religions have elaborated heaven, hell, and retribution.

The next point to be considered is as to whether Indians believe in any hierarchy of spirits, such as that which forms so important a feature in the higher religions. There is nothing to indicate that Indians believe in any spirits, except such as are or were once situated in material bodies, and differ in rank and power only as one man differs in these respects from any other. As religion grows, this early form of belief develops into a recognition of higher spirits and lower, until in the highest form of religion a belief in one Supreme Spirit is attained. But on this belief, at a very early stage in the transition which it thus makes, is engrafted the very important idea of spirits, many or few, which have always been spirits and never specially associated with any material body. Until the point at which this new idea is engrafted it cannot be said that there is any belief in a spiritual hierarchy. The Indians of Guiana have not yet attained this belief; they only know no spirits but those of men or other material bodies, and have no conception of any that are only or chiefly spirits, *i.e.*, they know no god.

The process by which the idea of a difference in the authoritative rank of spirits is attained seems to be by a generalisation of those spirits of equal power which form the earlier subject of belief—*e.g.*, the belief in a separate spirit in each body of water, river, spring, rain, sea, or whatever its nature, probably passes by generalisation into a belief in one more powerful water-spirit. It will presently be shown that the Indians of Guiana have made hardly any advance even in this direction. The process by which the first idea is gained of gods, of beings, that is, who have always been spirits, except when temporarily and for their

own purposes they have put themselves into bodies, and who in some, if not in all cases, have had some share in the creation of man and the visible world, is not so easily explained; but this is of little consequence here since all that is necessary is to show that the Indians have not yet attained any such notion.

The idea of a difference in the authoritative rank of spirits is not yet discernible in Guiana. It is, indeed, fully recognised that some spirits are more to be feared than others, in that some excel in physical power or cunning. For instance, the spirits of all rocks are supposed to be capable of harm; but again and again I have come across instances in which special rocks, such as the famous sculptured rocks, are more especially dreaded. But this is only because such rocks are more malignant. The matter may be made plain in this way. Not every river, but every bend and portion of a river, has a spirit; and though all these are regarded as possibly harmful, in that Indians have been drowned even in still water, yet the spirits of the falls, cataracts, or rapids are more especially dreaded, in that Indians have been much more frequently drowned in such places. But this idea of a difference in the degree of brute power or malignancy in various spirit-possessed objects is quite distinct from any belief in the possession by certain spirits of authority over other spirits and, consequently, indirectly of greater authority over men. The latter belief, which may be ticketed as a belief in a hierarchy of spirits, seems totally absent from the Indian mind.

It has been presumed that traces of a belief in such a hierarchy have been found among other peoples, in their recognition of a sun-spirit, a moon-spirit, a water-spirit, and so on. Such spirits are certainly recognised in Guiana. On one occasion during an eclipse of the sun the Arawaks, among whom I happened to be, rushed from their houses with loud shouts and yells, and with frantic gestures, to separate, as they explained, the sun and moon which were fighting. But, at least as far as the Indians of Guiana are concerned, I do not believe that they distinguish such beings as sun and moon, or such other natural phenomena as winds and storms, from men and other animals, from plants and other inanimate objects, or from any other beings whatsoever. All are of the same kind, each with a body and a spirit, and they differ from each other only in that some are physically more powerful than others; nor have any of them any sort of authority over any others.

But it is true that various words have been found in all, or nearly all the languages of Guiana, which have been supposed to be names of a Supreme Being, God, a Great Spirit, in the sense which those phrases bear in the language of the higher religions.

These names, as far as they are known to me, are—

Carib Tribes:
- True Caribs:
 - Tamosi = "the ancient one."
 - Tamosi Kabotanō = "the ancient one in sky-land."
- Ackawoi, Mackonamia (?)
- Macusi, Kutti (probably only corrupt for Dutch, *gott*).

Arawak:
- Wa murreta kwonci = "our maker."
- Wa cinaci = "our father."
- If-lici wa cinaci = "our great father."

Warrau. Kononatu = "our maker."

Waprana. Tomingatoo (?)

It will be seen that of these I am only able to explain the exact logical meaning of the two true Carib words, of the two Arawak words, and of the Warrau word. In these words only three ideas are expressed: and these are (1) one who lived long ago and who is now in sky-land; (2) the maker of the Indians; and (3) their father. Now none of these in any way involves the attributes of a god. They all point rather to a conception, which is certainly present in all Indian minds, that their remote ancestors, of whom they are accustomed to speak as their fathers, or by a very natural figure of speech, as their makers, came into their present homes from some other country, which is sometimes said to have been that entirely natural country which is separated from Guiana by the ocean of the air. When these same ancestors are said still to exist in that other place, this only means that those in particular have recrossed the sea of air back to the old country. Thus these supposed gods are probably but the traditional ancestors of each tribe. Moreover it must be remembered that these words expressing gods were first noted by missionaries, and were eagerly seized upon by them and used, as was natural, to express the God which they themselves preached.

To repeat what has perhaps been said wearisomely often already: there are, according to Indian belief, no spirits but such as either are or originally were embodied in material bodies; and no apotheosis has of these made gods or a god.

Once more, however:—in the idea of ancestral spirits still existing, there is a germ which might under certain circumstances develop into that leading conception of the higher religions, the conception of a fatherly and creating God.

One other subject claims mention in connection with Indian animism. In all systems of religion, belief in spirits and worship of spirits are two very distinct things, though the fact that in the higher religions the two are found almost invariably associated has induced civilised men to regard them as nearly

inseparable. But in a purely animistic system of religion, such as that with which we are now concerned, in which no hierarchy of spirits is recognised, there can be no worship, in that the latter implies reverence and adoration.

To understand the matter as it is exhibited in Guiana, it is necessary to recall the attitude of the Indians toward spiritual beings. There are, it is thought, no spirits except such as differ only according to their greater or less degree of physical power, and of these some are harmless, others are harmful; but while the harmful spirits are very active in their power of affecting men, the harmless are perfectly and entirely inactive in this respect. It is somewhat difficult to realise this Indian view. All that can be said of it is, that all the good that befalls him the Indian accepts either without enquiry as to its cause or as the result of his own exertions; and that all the evil that befalls him he regards as inflicted by malignant spirits. Accordingly the Indian performs no acts to attract the good-will of spirits; but he does constantly so act, and so avoid actions, as to avert the ill-will of other spirits. For example, he is, as has been told, careful not to look at, or even to mention certain rocks and other objects. In this connection, one universal and very common custom of the Indians of Guiana is very noticeable. Before attempting to shoot a cataract for the first time, on first sight of any new place, every time a sculptured rock or striking mountain or stone is seen, the Indians avert the ill-will of the spirits of such places by rubbing red-pepper (capsicums) each into his or her eyes. For instance, on reaching the rock in the Corentyn river, called from the sculpture on it, Temehri, the Indians—men, women, and children—from 20 to 30 in number—who accompanied me, immediately busily began this painful operation of pepper-rubbing. The extreme pain of the operation as performed thoroughly by the Indians, I can faintly realise from my own sufferings when I have occasionally rubbed my eyes with my fingers immediately after handling red pepper; and also from the fact that, though the older practitioners inflict this self-torture with the utmost stoicism, I have occasionally seen the otherwise rare sight of Indians—children and even young men—sobbing under the pain of the infliction. Yet I never passed a cataract, or any other of the objects above mentioned, in the company of Indians, without seeing this ceremony performed. Sometimes, when by a rare chance no member of the party had had the forethought to provide pepper, lime-juice was used instead; and once, when neither pepper nor limes were at hand, a piece of blue indigo-dyed cloth was carefully soaked, and the dye was then injected in the eyes of the whole party. The whole ceremony is an attempt to avoid attracting

the attention of harmful spirits. If it is absolutely necessary to pass a bad rock or a spiteful cataract, these objects are not mentioned during the passage, are not looked at more than is necessary, and artificial means, such as blinding the eyes with pepper-juice, are even used to avoid the dreaded sight; for just as, according to the old story, the ostrich which has covered its own eyes thinks itself hidden from its pursuers, so the Indian, having prevented himself from seeing a harmful being, thinks that the latter does not see him. This habit of avoidance of dreaded beings forms the only ceremonial observance practised by the Indians.

9. In conclusion, two things remain to be noted. First, that the animism of the Indians of Guiana is of a very pure kind, and unaffected by any of the modifications which change animism into higher religion. And, secondly, that this animism of Guiana, as probably in more or less degree that of the whole of America, is of a very much more primitive kind than has as yet been suspected by students of religious evolution.

Discussion.

Mr. Poundes said that if the author could afford information as to the existence of human sacrifice and similar rites, it would be of value. He remarked that this interesting paper was a contribution to folk-lore of all the more importance coming as it did from one who had resided amongst the natives. It furnished another link in the long chain of evidence of the primitive condition of the peoples on both sides of the North Pacific, and to the comparative student of folk-lore it was most useful.

Mr. James Heywood deemed it probable that the Indians of British Guiana had a higher object of worship than the spirit of the sun or the spirit of the moon. Dutch missionaries may have taught some of those Indians the Dutch name for the Deity, but the worship of the Great Spirit is wide-spread among American Indians. The speaker was acquainted with religious opinions of the Six Nations' Indians, in the Tuscarora Reserve, County of Brant, Canada West, and their epithet for exalted, or immensely extended, was "great:" thus they termed Queen Victoria the "great mother," and the ocean was the "great water." With the North American Indians generally the Deity is the "Great Spirit," whom they worship. Similar opinions, according to the works of various North American writers, prevail in different parts of the United States of North America, among the Indians. It seems reasonable to suppose that religious views of a like kind may have existed from very remote antiquity among the Indians of the northern part of South America.

Dr. Hack Tuke remarked that there were two facts stated in the paper which more especially interested him: one was the extraordinary fear which the Indians of Guiana entertained for

invisible agencies. He thought we often overlooked the real mental suffering which savages endured from this dread of spirits. We were too apt to associate fear of this kind exclusively with the fanaticism and superstition of religions of more civilised nations. With the people of Guiana, therefore, this belief must exercise a very considerable influence upon their minds, and was calculated to overthrow their balance in some instances. The other point was the vivid reality of their dreams. This was a most curious fact; and he had little doubt that the same confusion—the same inability to distinguish between dreams and the actual occurrences of life happened with certain of the insane. It was not at all uncommon for lunatics to assert, in the most positive terms, that various things had befallen them in the night, that they had been assaulted, &c., and the foundation of these delusions was, he thought, often laid in vivid dreams, which to them were as real as they appeared to be with the Indians of Guiana. There was no reference in the paper to the insane in Guiana, and he should like to ask the author whether he had met with any, or with idiots. If so, were they regarded as possessed by evil spirits, or looked upon as the special favourites of heaven? There was one more point on which he should like to be informed. Was there no crime of witchcraft recognised in Guiana? Were not witches punished for their supposed malignant influences? So far as he had been able to gather from this paper, which was one of the most interesting he had ever listened to, the fears of the people were directed towards invisible powers only, and not to persons supposed to be in league with them.

Mr. R. W. Felkin observed that the author had mentioned that the Indians are in the habit of taking with them a lighted firebrand when leaving a camp at night, for the purpose of frightening away the spirits. He should like to ask him if there were any other practical object in so doing, such as lighting up the path, or as a mark that they belong to the camp. He asked this question because in his journey in Central Africa he had often seen this done by the natives. On enquiring why, he was told it was to frighten away the devil, but he found on further enquiring, that the custom arose from a rule, that a firebrand must be taken by anyone leaving the camp at night to show the watchman on his return that he belonged to the camp, and was neither an enemy nor a thief.

Professor Flower, Mr. A. L. Lewis, Mr. G. M. Atkinson, M. Bertin, and Mr. J. Park Harrison also joined in the discussion.

Mr. im Thurn, in answer to various questions addressed to him, stated that his study of animism had been but a part of the Indian social history, regarded as a whole, and that he had had some difficulty in confining the remarks just made by him strictly to animism. He was now asked whether he had found any traces of stone circles, of human sacrifice, of rock inscription, of magic, and so on. No doubt all these and many other matters were more or less directly connected with the religion of the Indians; but time

failing, he must refer his questioners to a series of papers dealing with all these matters which he had already placed in the hands of a printer. There was just one point on which he would like to make further remark. And that was that several of those who had spoken after his paper had referred to the terrible evil of the state of superstition in which the Indians were described as living. He wished to point out that there was also good in this superstition: that the fear in which the Indians lived of unwittingly offending the countless beings visible and invisible among which they felt themselves to be, kept them very strictly within their own rights and from offending against the rights of others.

On the DISCOVERY *of* CHERT IMPLEMENTS *in* STRATIFIED GRAVEL *in the* NILE VALLEY *near* THEBES.

By Major-General PITT RIVERS, F.R.S., President Anthrop. Inst.

[WITH PLATES XXVII TO XXXVI.]

(A Paper read before the Institute on June 14, 1881.)

HAVING paid a hurried visit to Egypt in March of the present year (1881), my attention was naturally turned to the question relating to the occurrence of flint or chert implements in the Nile valley. The subject, as Anthropologists are aware, has been much discussed of late, and its importance arises from its special bearing on the antiquity of man. Our own journal has contributed its quota to the controversy, and the papers by Sir John Lubbock, Mr. Jukes Browne, Captain Burton, and others are well known to members of the Institute.

I will not ask the Institute to follow me in reviewing the history of this discussion, the materials for which are to be found in the papers I have alluded to, and many others by men of equal ability, a list of whose names would alone suffice to prove the great attention and research that have been brought to bear upon the subject.

Perhaps the present state of the question may be best summarised by quoting the opinion of Sir John Lubbock, one of the latest contributors to the archæology of the stone age in Egypt.

After carefully examining the various sites in which implements have been found on the surface in the Nile valley, and making a large collection of them, he came to the conclusion that their forms mostly resembled those of palæolithic implements found in Europe, and that they were probably pre-Egyptian. This, however, being an argument based upon resemblance of form only, cannot be considered conclusive, and Captain Burton, who followed Sir John in an examination of the sites

though favouring the same view, still leaves the question open so far as date is concerned. It is unnecessary to remind the Institute that the doubt in this matter arises from the known fact that the Egyptians used flint implements in embalming and for ceremonial purposes, and consequently it has been supposed by some, that when the *débris* of flint implement-making (*ateliers*) are found on the surface in the neighbourhood of tombs it indicates nothing more than the manufacture of flints for this object. The enormous number of these workshops might, however, be used as an argument against their having been employed for this purpose alone. Sir John observed that flint flakes were found only on the slopes of the hills above the level of the inundations, and that in the neighbourhood of the temples in the plains they were wanting. My own observation confirms this fact. I found few, if any, traces of the manufacture of flints around Karnac or Abydus, whilst they were abundant near Koorneh and Asyoot, at the foot of the Lybian range. But then the question might suggest itself:—If the flints were used for embalming, might not their presence above the line of the inundation arise from the position of the tombs which are all cut in the hill sides ?

Figs. 1, 2, and 3, Plate XXVIII, are illustrations of chert implements found by me on the slopes of the hills near Asyoot, in the vicinity of the tomb of Meri-ka-ra, a dignitary of the XIIIth Dynasty. Fig. 1 appears to be a kind of edged tool, sharp at the bottom and reduced to a tang at the top. Fig. 2 might be a hammer or an agricultural tool; it is also trimmed at the top for insertion into a handle or haft of some kind, Fig. 3 is a flake. The stone of the hill is limestone, and the chert flakes and tools which are found in the neighbourhood must have been imported from the interior. Such tools as are represented in the plate might have been used in excavating the tombs, but there is no proof of it; they might equally have been brought to the place in pre-Egyptian times.

In the limestone of Asyoot, as well as the sandstone at Thebes, I ascertained by experiment that the hieroglyphics can be easily worked with flint. When first excavated, the limestone is easily cut with flint or chert, but it hardens by exposure. At Thebes, also, I picked up a piece of sandstone, which had fallen off the Temple of Koorneh, and a chert flake that was lying beside it, and with the latter I first squared the sides of the stone, then smoothed the face of it, and afterwards, taking the point of the same flint, I cut upon it a human head and shoulders which might almost be taken for an Egyptian original, completing the whole in about twenty minutes. Indeed, I believe that when properly hafted no better material could be employed for

the purpose than flint or chert which by fracture in use renews its own edge as work proceeds.

Of the use of metal in squaring the large blocks, there is abundant evidence on some of the Theban monuments. The marks of chisels about 0·8 inches (0·02 m.) in width, which from their uniform size could be of no other material than bronze or iron, can be traced all over the blocks. The successive blows of a hammer are shown by cuts succeeding each other at the distance of 0·4 inches (0·01 m.) from edge to edge, and some of these Mr. Campbell and myself traced underneath the paint or plaster on the columns at Medeenet Haboo. The plaster flaking off retained the casts of the chisel marks upon its under side. But it is remarkable that on the faces of the inscribed parts, and in the hieroglyphics, we could find no tool marks after lengthened search, and with the result of the experiment which I have mentioned fresh upon my mind, I came to the conclusion that the hieroglyphics might very possibly have been made by scraping with a flint, thereby meeting the views of those who believe with Mariette Bey, Mr. Chabas, and others, that flint may have been used by the Egyptians for certain purposes, but by no means negativing the opinion held by Sir John Lubbock and other prehistorians, that they belong more especially to prehistoric times. Indeed, the fact of their having been employed by the Egyptians for embalming and other purposes connected with the dead, lends confirmation to the view that they may have been so employed as survivals dating back to a time when no other material was known, mortuary customs being at all times and in all places those in which the reminiscense of bygone ages are most likely to be found.

When at Luxor I was taken by Mr. Campbell to a little knoll called Gebel Lahamare, about a mile north-east of Koorneh, where a large number of flakes are to be seen on the surface. They occupy the whole of the hill, and from the fact of the greater part of them being fractured or flaked by hand, I have little doubt that they must have been conveyed to this spot for the purpose.

It is remarkable that amongst the enormous number of flakes which cover the surface at this spot, we scarcely found one which had marks of secondary chipping, whilst on the raised plateau called Gebel Assart which lies between this and Koorneh, the surface, equally thickly strewed with flakes, was covered with flakes which had secondary chipping on their sides and edges. This shows a difference in the purpose of the manufacture in the two places, but in neither of them did I find a single perfect implement.

Fig. 4, Plate XXIX, a good example of a small tongue-shaped

palæolithic type, was found on the lower ground nearer the highest flood mark, and fig. 5, Plate XXIX, resembling somewhat a neolithic celt, was found in the waddy (A.B., Plate XXVII), to be hereafter mentioned. Fig. 6, Plate XXX, is a specimen of a hollow scraper used for rounding and planing the surface of wooden sticks or shafts,* and was the only worked tool I found at Gebel Lahamare. This form of tool I have before identified with palæolithic forms at the palæolithic station at Bois du Rocher, near Dinan, in Brittany. I there found a number of them of smaller size, the other forms at that station being invariably palæolithic. It will be seen by examining the two sides of this flint represented in A and B (fig. 6, Plate XXX), that on the side A, the facet which contains the concavity which has been used as a plane for round surfaces is quite smooth, whereas on the other side B, it is worked in innumerable chips and minute facets. This has doubtless been produced by use, the flint having been drawn along the stick from the side A to the side B, thereby producing facets on the side B only, and causing the bevelled edge represented at D in the section C.

Before quitting the subject of these surface flints I may allude to two remarkable objects in my collection the origin of which had considerable light thrown upon them by my visit to Thebes. I had for some years possessed two flint bracelets, which had attracted the attention of anthropologists on account of their excellent workmanship. These are represented, full size, in figs. 7 and 8, Plate XXXI. They were found in one of the tombs near Koorneh, but no further particulars respecting them had reached me. These objects being unique, so far as I know, and being undoubtedly genuine, it had always struck me as singular that so unsuitable a material as flint should have been employed for the purpose. The bracelets are entirely formed by chipping, no grinding or polishing being seen on any part of their surface. Amongst the flints which strewed the surface on Gebel Assart were a large number of round nodules, of which some specimens are represented, half size, in figs. 9, 10, 11, 12, and 13, Plate XXXII. They were evidently imported to this spot for flaking, and most of them were more or less chipped by the flint workers. They all consist of a central body surrounded by a ring of the same material. Mr. Newbold describes these bodies thus: "I may briefly notice," he says, "some singular silicious bodies that occasionally occur embedded in the marine limestone, and are particularly numerous in the limestone rocks of Thebes. They cover the *débris* at the foot of the cliffs in such profusion that they are termed by the Arabs 'nuktah,' or drops which they suppose to have been rained from heaven. They are also seen

* Evans's "Ancient Stone Implements," p. 287.

there *in situ* deposited conformably in a horizontal layer of whitish marl in the earthy white limestone which abounds in thin seams of crystallised gypsum, muriate of soda, and calc spar. These bodies usually assume the shape of spheroids encircled by a belt resembling the delineation of a planet with its belt (fig. 9, Plate XXXII). Two are sometimes connected together, whilst others assume various modifications of form. They have a thin whitish coating, and in the interior present a greyish or brownish chert (see fig. 12, Plate XXXII). Ehrenberg ("Edin. Phil. Journal," April, 1841), who lately examined these silicious spheroids, terms them ocellated stones, or *morpholites;* he found no traces of organic structure, and is of opinion that they are the result of crystalloidal or morpholitic force. Their structure does not present radiation from the centre nor any appreciable crystalline development in their parallel planes of formation founded on uniform laws, which frequently, perhaps always, parted from many axes of formation. In the curious structure of these bodies Ehrenberg discovered foreign bodies, small stones, fragments of granite, &c."

Thus far is the description given of them by Mr. Newbold and Ehrenberg; but what concerns more immediately the subject of my present communication is that when fractured along their broadest axes (fig. 12, Plate XXXII) the material is seen to be distributed in concentric rings encircling a centre differing from the remainder in colour only. The ring or belt surrounding the main body is often divided from it only by a thin partition; and sometimes the ring only is found, as seen in the semicircular portion of one represented in fig. 13, Plate XXXII. The material is identical with that of the bracelets in my possession, and it seems evident that the idea of forming a bracelet of them has been suggested by the form of the stones. By chipping out the central body or by using a flint from which the central body had disappeared through natural causes, the remaining ring might easily be chipped into the form of the bracelets represented in figs. 7 and 8, Plate XXXI, thus accounting for the existence of an abnormal structure, which, as anthropologists are aware, so rarely present itself in relics of a barbarous age.

Fig. 14, Plate XXXIII, is a remarkable specimen of a flint knife,* obtained from a tomb at Kom Ombos in the year 1874: it has probably been one of the flint knives used by the Egyptians in embalming the dead; it is 12·05 inch in length and 0·36 inch greatest thickness. As a specimen of flint chipping it is unequalled, being worked in long facets across the face of the blade.

* This knife and the flint bracelets were obtained by Mr. McCallum, the artist, from whose possession they passed into my collection.

So long, however, as the finds of palæolithic implements were confined to the surface, all conjectures respecting date, as Mariette Bey truly observes, are hypothetical; probabilities may be put forward again and again and may be refuted by probabilities equally cogent on the other side.

It is to stratified deposits of gravel or alluvium that we must look for evidence such as that which in Europe has satisfied anthropologists of the antiquity of the implements found in them. M. Arcelin is said by Sir John Lubbock to have stated that the deposit of worked flints on the sides of the valley at Abu-Mangar extend beneath the modern deposits of the Nile; but Sir John himself was unable to verify this observation. Mr. Jukes Browne found many flints on the surface of the plateau near Helwan, but not beneath the surface. Since this, however, Dr. Mook appears to have found them in alluvial deposits near this place, in association with the bones of zebra, camel, hyena, ostrich and other animals, which have since retreated further south.*

Upon the gravels of the Nile valley little appears to have been written. Mr. Leonard Horner, in his two papers in the "Philosophical Transactions," scarcely touches upon them, nor does Mr. Newbold treat upon them in any detail, and so far as I am aware any light that can be obtained as to their mode of deposition must be derived chiefly by analogy from other sources.

I have already said that the low plateau to the north-east of Koorneh, called Gebel Assart (see E, Plate XXVII), is covered with the *débris* of chert workshops. So thickly are these flints strewed upon the surface that the whole of the ground, when viewed from the little hill called Elwat-el-Deban, or the "Hill of Flies" (see D, Plate XXVII, and fig. 15, Plate XXXVI), appears to be distributed in brown patches where they occur, the chert fragments having assumed that colour by age. The soil beneath consists of indurated gravel composed of chert and limestone cemented together by carbonate of lime, and the whole deposit appears to have been washed down from the Bab-el-Molook, a tributary valley in which the tombs of the kings are situated, and to have spread out on the plain in a fan shape between the gorge of the valley and the Nile. Through this delta or fan of gravel a waddy (A.B., Plate XXVII, and fig. 15, Plate XXXIV) about 80 paces (61·0 metres) mean width, has cut its way to a lower level and now extends from the gorge of the valley to the margin of the highest Nile floods, passing through the fan for a

* Professor H. Haynes also found implements of palæolithic form near Thebes, but on the surface only

distance of nearly 2,000 paces (1,540·0 metres) and opening into the plain about 270 paces (207·0 metres) to the east of the Temple of Koorneh. The bottom of the waddy throughout this space slopes at a very slight angle of not more than half a degree, and the surface of the delta of gravel on each side has scarcely a greater angle, but seams of mud in the section on the sides of the waddy are seen to slope down at an angle varying from 2 to 2½ degrees towards the Nile, showing in all probability that the delta of gravel was formed gradually as it extended from the centre to the circumference. This appears to me the most rational way of accounting for the deposits in question, though it must be admitted that there are places in the valley where the gravel, when viewed from the Nile, appears to abut upon the precipitous sides of the range of hills in a way that would require a different interpretation, but the subject requires more time and detailed study than I was able to afford to it.

When viewed from the "Hill of Flies," the entire length of the waddy (A.B., Plate XXVII), as it passes through the gravel hills, is exposed to view, but it is noticed that the brown patches of chert which I have alluded to as occurring on the surface of the delta are not continued in the bottom of the waddy, which is seen as a white streak throughout its length. This proves that the flints on the surface of the delta were imported for fabrication at a prior date to the completion of the cutting of the waddy, for had they been imported subsequently, there is no ostensible reason why the flint-workers should not have occupied the bottom of the waddy also; nor, on the other hand, does it appear likely that the use of flint had entirely ceased when the waddy had reached its present depth, because flint flakes, though not so abundant as on the delta above, are found on the surface of the waddy. Fig. 5, Plate XXIX, which approaches most closely to a celt of the neolithic type, although its form does not necessarily prove it to be neolithic, was picked up by me in the waddy, and in one place I found a deposit of chert flakes which appeared to have been struck off on the spot.

It is certain, however, that in Egyptian times the waddy had reached its present dimensions, and that it has never changed materially since, for the sides rising at a more or less abrupt angle in places to a height of 9 feet to 19 feet (3 to 6 metres) have been cut into tombs, which consist of flat-topped chambers and galleries supported by square pillars of gravel, and the floors of which are in some instances nearly on the level of the bottom of the waddy. (See the section across the waddy, figs. 18 to 20, Plate XXXIV.)

The gravel had become so indurated at the time these tombs were cut as to form a conglomerate. The tops of the chambers



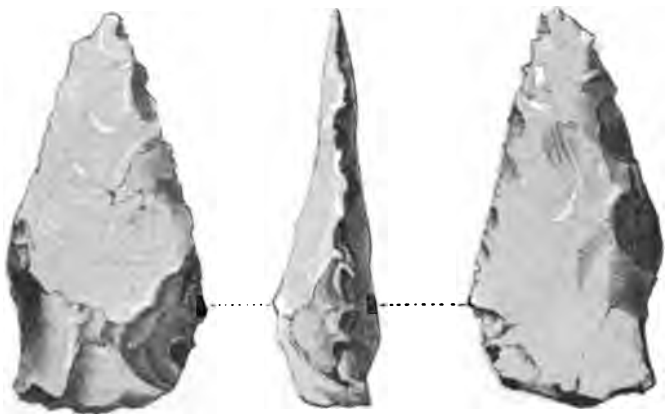




CHERT IMPLEMENTS FOUND ON THE SURFACE
NEAR THE TOMB OF MERICARA, ASYOOT.
HALF SIZE.

Hanhart lith

Fig. 4.



IMPLEMENT OF PALÆOLITHIC FORM
FOUND ON THE SURFACE NEAR KOORNEH. HALF SIZE.

Fig. 5.



IMPLEMENT OF NEOLITHIC FORM
FOUND IN THE WADDI NEAR KOORNEH. HALF SIZE.

Fig. 27



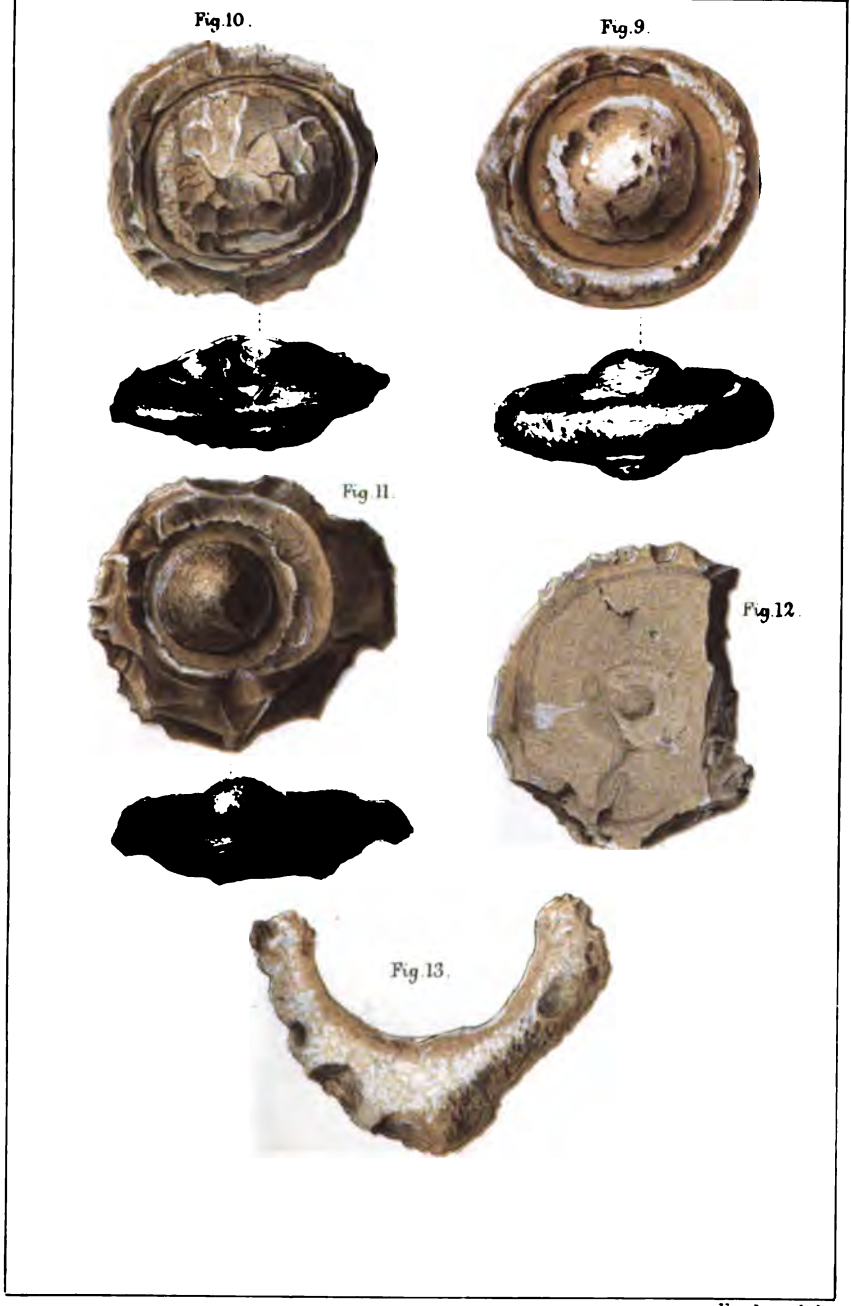
Hanhart lith.

HOLLOW SCRAPER FOUND ON THE SURFACE AT GEBEL LAHA-MARE.
VIEW OF FAN IN LADAKH, INDIA.



Hannart lith

CHIPPED FLINT BRACELETS FOUND IN A TOMB
NEAR KOORNEH.
FULL SIZE.



Hanhart lith

MORPHOLITES FOUND ON THE SURFACE
NEAR GEBEL ASSART, THEBES.
HALF SIZE.



Hanhart lith.

CHERT SACRIFICIAL KNIFE FOUND AT KOM OMBOS.
HALF SIZE.

are perfectly flat, and 14 feet (4·250 metres) square in some cases, and the pillars averaging 23 inches (0·6 metres) square have retained the sharpness of their edges to the present time, and in one of them a seam of mud is seen in the middle of the upright pillars, all having nearly the consistency of stone.

It was in this gravel that I commenced my search for flint flakes, on the 4th March, 1881, and as the discovery I am about to record is likely to be more widely known hereafter than the author of it, it seems proper that I should mention here that I had qualified myself for the search by previous investigations of the like kind. For some years I had made a particular study of river gravels. I had discovered palæolithic implements *in situ* in the drift gravel at Acton, the first which up to that time had been found in that part of the Thames valley, a record of which is in the "Quarterly Journal" of the Geological Society. I had also examined every section in which palæolithic implements had been found by others in England or on the Continent. Following the example of Dr. John Evans, F.R.S., to whom most prehistoric archæologists are indebted for their first lessons in the fabrication of flint implements, I had myself constructed flint implements many years ago, and had by that means acquired a thorough knowledge of the fracture of flint, a qualification of the first necessity to any one who proposes to examine a section of gravel for this purpose, because only a small portion of the sides of any flint is exposed to view in a section, and it requires the eye of an expert to distinguish from amongst the innumerable fragments of chert, of which a cherty gravel is composed, those which it is worth while excavating for the purpose of examination. Of the fragments thus unearthed for examination, only a small proportion even in the most productive site will be found to bear the recognised marks of human agency which constitute a flint flake, and which, as all prehistoric archæologists are aware, consists of a combination on the same flint of a bulb of percussion on the smooth face, one or more facets at the back caused by blows delivered in the same direction as that by which the bulb on the other face was produced, and on the top of the flake, contiguous to the bulb, the small residuum of the surface of the core from which the flake was made.

I had not long to look before several flakes such as I have described turned up in positions which proved unmistakably that they were constituent parts of the gravel. The section fig. 17, Plate XXXIV, here shows 3 feet 9 inches (1·15 metres) of gravel on the top composed of subangular and rounded chert and limestones, then 13 inches (0·33 metres) of hardened mud somewhat similar in colour to the Nile mud, but mixed with

occasional flints, and sloping at an angle of 2½ degrees towards the Nile, then gravel again of the same materials as before.

The flakes were found chiefly beneath the mud seam at distances of 6½ to 10 feet (2 to 3 metres) from the surface; they are of the ordinary kind, having bulbs of percussion and facets, drawings of which are given in figs. 22 to 26, Plates XXXV and XXXVI. Of the fact of their forming constituent portions of the gravel, none who saw them *in situ* could for a moment doubt; but in order to afford proof that the recognised marks of human agency were not derived from the blows of the Egyptian workmen in excavating the tombs, special care was taken to observe and record the position of the bulbs and facets as they lay in the gravel. Fig. 24, Plate XXXV, affords an example of this; this flake, which it will be seen has a bulb, two facets, and a piece of the surface of the core, was found in the evenly cut side of one of the tombs. The point of it (*a*, *a*, *a*, fig. 24, Plate XXXV) had been cut off flush with the side in forming the tomb, the thin section of it only appearing on the surface of the tomb as shown in the front and side view represented in fig. 21, Plate XXXIV.

In order to examine the position of the facets and bulb, the gravel was first chiselled away from beneath it, but it was so hard that it took two of us nearly ten minutes to excavate it. Having cleared the part below the flake it was then let down, when it was seen that the bulb on the smooth face and the two facets on the back had been formed by blows of a hammer which were delivered in a direction which was *inwards* as the flake lay, and must therefore have been formed before the flake was buried in the gravel. The same observations were made in the case of all the other flakes, seven of which were thus removed from the gravel on the first day. This was the 4th March.

Realising the importance of obtaining a competent witness to the position of these flints, I at once communicated the result to Mr. Campbell, F.G.S., who was stopping at Luxor. He accompanied me to the spot on the 6th, and satisfied himself upon the point by chiselling several flakes out of the gravel with his own hands; verifying the observation with respect to the position of the bulbs and facets as the flakes were removed from the matrix.

We then examined the sides of the waddy northwards to see how far the flakes could be found in the gravel in the direction of the opening of the gorge. Another, in this case an implement of palæolithic type (fig. 25, Plate XXXVI), was found 5 feet (1·6 metres) from the top as shown in the section (fig. 16, Plate XXXIV). The sides of the waddy were here nearly 14 feet (4·250) high, and the gravel was composed of the same materials as before.

This was about 400 paces (300·0 metres) from the margin of the delta, and about 500 paces (400·0 metres) from the mark of the highest Nile floods, so that the whole of the gravel between this and the Nile must have been formed during the period that flint was used in this place. Higher than this we could find no trace of implements, nor could any shells or bones be found; but I left Mr. Campbell at Luxor, and have reason to hope that his geological experience may be the means of throwing further light on this important part of the question; but the gravel, it will be observed, has nearly the consistency of stone, and to quarry it for the sole chance of finding bones would be a work of great time and labour. I was reluctantly compelled to leave this part of the subject to future explorers.

It now remains only to consider the value as evidence of the facts which have been adduced. Considering the action of carbonate of lime in cementing the particles of gravel together the circumstances of its being formed into a conglomerate need not in itself be taken to imply very great antiquity. Mr. Newbold observed in the calcareous cliffs skirting the Mediterranean between Alexandria and Aboukir, a bed, 1 foot thick, of bleached human bones derived from ancient Roman graves, which had been washed into their present position by drainage water running from the higher ground to the sea, and which were covered with a layer of gravel and sand varying from a few inches to 3 or 4 feet, which had been agglutinated together by carbonate of lime and ferruginous matter deposited by drainage water.

In other places in the Nile valley he also speaks of recent rocks formed in this way. But here at Thebes we have to deal with a mass of gravel extending 400 paces (300·0 metres) along the radius of the fan, and from 10 to 20 feet (3 to 6 metres) in thickness, all which has been deposited since flints were in use.

I have failed to ascertain the exact period of the tombs cut in this gravel in the sides of which the flint flakes were discovered. But within certain limits their date can be fixed. The fragments of pottery found in them have been submitted to Dr. Birch, who pronounces them to be not later than the XVIIIth Dynasty, and perhaps earlier. Five skulls found in them, the dimensions of which are given in the accompanying tables (Appendix A), are of the usual Egyptian type; the skulls are dolicho-cephalic; mean cephalic, index 750; nasal index, 513; orbital index, 872; alveolar index, 1,012; measured according to Professor Flower's method. The fragments of mummy cloth in which they were contained were found in the tombs; they show no trace of bitumen, the skulls being as

white as any prehistoric skull found in this country. That might either imply an early date, or that they belonged to the poorer class of Egyptians who did not use bitumen—probably the latter, as the graves of the richer class were usually excavated in the harder rocks.

The nearest tombs to the north-west, those of Drah-Aboo'l-Negga, are of the XIth Dynasty. The particular tombs which I am describing are not marked in the "Description de l'Egypte," published in 1809, but those situated nearer the second section are there marked Hypogée. Those now in question are given in the plates of Lepsius' great work, and are also marked in Sir Gardner Wilkinson's topography. Even supposing the tombs to be of the latest period assigned to them, viz., the XVIIIth Dynasty, this may carry us back as far as 3500 years from the present time, for the date of the excavation of the tombs.

But it is to considerations relating to the formation of the delta that we must look chiefly for determining approximately the age of the gravel. I am not aware that the Nile gravel has been carefully studied by any geologist. Probably Mr. Campbell can give the Institute more information upon this subject than any one else; but Mr. Drew, in the XXIXth vol. of the "Quarterly Journal" of the Geological Society, has described similar deposits in the valley of the Upper Indus. It appears to be generally admitted by geologists that the Nile has not cut its own channel in later times, but has followed a furrow made previously to the last rise of this district above the ocean. If so, we may discard from consideration all idea of gravel deposits left by the Nile on the sides of its valley as it worked its way down. We must suppose the gravel under consideration to have been brought down from the side valley before alluded to and spread out in a fan or delta similar to that described in Mr. Drew's paper at Pamzalan, Changchenmo, Ladakh, a drawing of which, extracted from his paper, is given at fig. 27, Plate XXX. It is there shown how the main river rising, or changing its course, has eaten into the edge of the fan and formed a cliff of greater or less height in it, and has then retreated. The water from the side valley still continuing to flow down towards the main river has then cut a lower channel back from the edge of the cliff to the gorge in the hills from which it descends. The main river still retreating has left an alluvial plain between it and the cliff which it had cut previously. The water from the side valley continuing to bring down sediment from the hills has then formed a second fan at a lower level than the first. Now we know that the bed of the Nile has both risen and changed its course since Roman times. According to Sir

Gardner Wilkinson the alluvium of the Nile at Thebes has risen 5 inches (0·127 metres) in 100 years. This would cause a rise of the highest level of the inundation of about 14 feet (4·250 metres) since the period of the XVIIIth Dynasty. It is possible, therefore, that the gravel under consideration may have extended further towards the Nile and may, in the same manner as the fan at Pamzalan described by Mr. Drew, have been cut into by the river; but I am bound to say I saw no evidence of this. The surfaces of the fans described by Mr. Drew slope at angles of 4·5 and 6 degrees, and the cliffs cut by the river are consequently much higher than here, where the slope of the surface of the delta is not more than 1 degree at most, and the gravel no higher than 20 feet (6 metres) anywhere. The gravel does not now reach within 60 yards (55·0 metres) of the highest mark of the inundation, and the ancient Egyptian tombs are cut quite to the end of the gravel, and even round the outside of it, if I remember rightly, in parts facing the Nile. If so, the gravel can never have reached further towards the Nile, or have been cut into by it. Mr. Drew in his paper refers to another cause which in the Upper Indus has been the means of cutting a lower channel through the fan, viz., that the side valley instead of remaining an accumulator has been converted into a denuder. Instead of bringing down gravel and sediment from the gorge which, being deposited on the surface of the fan, has caused the stream constantly to change its course and run at various times over the whole surface of it, the gorge has flown with water only, which finding its lowest level has run constantly over the fan in the same channel and has thus cut a trough through it from the gorge to the main river. I believe this to be the origin of the waddy near Koorneh. I believe also that the existing conditions of climate and rainfall are insufficient to account for the deposition of so large a mass of gravel as is found in this place. Not only has the valley ceased to bring down sediment in sufficient quantity, but even the water supply is not now enough to have cut the waddy through the fan. I was informed, only as a remarkable phenomenon, that the water had run ankle deep in the waddy six years ago for two days and a night. There is now a cemetery at the mouth of the waddy, and between it and the line of the inundation, which would have been buried beneath the gravel had any been deposited here since the graves were made. Horner speaks of rain in this part being now almost unknown, and Newbold says that but little rain falls in Central and Upper Egypt. Nevertheless, he describes valleys which have been widened, and others which have been altogether formed by aqueous causes, no longer in operation, and the surfaces of

these valleys, he says, are for the most part covered with drifted gravel composed not only of the detritus of rocks in the vicinity but of rolled pebbles of other formation transported from a great distance, for whose presence the action of existing streams is not adequate to account, as these pebbles often rest on ledges and hills much elevated above the general drainage level.

To what cause are we to attribute such an entire change in the process of denudation of the hills bordering the Nile? The main cause of disintegration, as Mr. Drew observes, when speaking of like changes in the Upper Indus, is frost. Have we then in the facts now recorded evidence of the presence of man in the Nile valley, living under conditions of climate that were totally different from what exists at the present time?

The accompanying tables (marked Appendix B and C) contain measurements of other skulls found in tombs near Thebes which I obtained from natives. The measurements are carefully taken according to both Professor Flower's and Mr. Busk's systems, and may be useful for comparative craniometry. The skulls appear to be homogeneous in character, and are probably of the true Egyptian race. When I obtained them they were covered with mummy cloths and bitumen: the nasal spine appeared in each case to have been removed in the process of embalming. These skulls have no special bearing on the objects of this paper.

APPENDIX D.

(Extracts from Letters written by J. F. Campbell, Esq., F.G.S.)

"Niddry Lodge, Kensington,

"My Dear General, "July 11, 1881.

"According to your wish, I send you extracts from letters which I wrote from Luxor, and which bear upon the discovery of worked flints in old gravel, on which stand some of the oldest Egyptian monuments.

'Luxor, January 15, 1881.

'I. Geologically, the Nile hollow is denuded out of a plateau, which is limestone, from here to Cairo. The beds are nearly horizontal all the way, and I have been at the base of the cliffs at many places. The cliffs are crumbling from the work of sunshine and air; expansion by day, contraction by night, caused by a daily range of 40° to 114° = 74°, and chemical decomposition of limestone in air. It rains here about once or twice in ten years, when a thunderstorm whirls water enough this way to make a heavy thunder plump. Then all the rain gathers into V-shaped 'waddies,' and a torrent sweeps the talus formed at the base of the cliffs down into the shape of a delta, into the Nile hollow. When the flood waters reach so far, they work on their side "deltas," wash them and spread them on the mud of Egypt, and wash mud and sand

To face page 394.

MEASUI WHICH TOMBS THE CHERT IMPLEMENTS WERE NE, 1881.

Number.	Greate…orius. Horizontal Circumference.	Length.	…dius to. Alveolar point.	Other Measurements. Least Frontal width.	Greatest width at Zygomatic Arches.	Width of Cheek Bones beneath outer margin of Orbits.	Depth of Chin from root of Teeth.	Remarks.
1	507	183	99	99	†	†	—	
2	499	179	97	104	†	†	—	
3	493	177	95	114	†	†	—	
4	509	182	104	102	†	†	—	
5	480	171	94	103	119	94	—	
Totals	2488	892	489	522	119	94	—	
Average	498	178	98	102	119	94	—	

…RS, F.R.S., DECEMBER, 1881.

1	529	192	102	95	141	120	34	Nasal bones and chin prominent. Teeth slightly ground.
2	511	186	98	97	137	114	35	Nasal bones rather prominent, chin deep and prominent.
3	502	181	98	95	123	105	23	An aged person.
4	525	188	99	94	124	105	30	Nasal bones and chin slightly prominent.
5	525	190	98	92	117	100	30	Nasal bones very, and chin slightly, prominent. The teeth ground.
6	†	181	98	93	136	†	30	Skull fractured. An aged person. Cheek bones and chin very prominent.
7	522	188	99	99	129	103	33	Nasal bones and chin very prominent.
8	510	182	107	91	127	109	31	Nasal bones prominent, chin slightly so.
9	517	188	99	94	127	108	31	Nasal bones prominent, chin rather prominent, teeth ground.
10	498	181	99	93	130	109	29	Nasal bones prominent, chin rather prominent.
11	517	188	100	95	134	107	25	Nasal bones very prominent, chin prominent.
12	504	182	95	94	124	102	†	
13	523	187	100	93	131	100	†	Nasal bones very prominent, teeth ground.
Totals	6183	2411	1292	1225	1680	1282	331	
Average	513	186	99	94	129	107	30	

…TT RIVERS, F.R.S., DECEMBER, 1881.

	496	17…	99	90	123	101	—	Skull of a juvenile cutting right wisdom tooth, frontal and parietal sutures not closed. Rather prognatheus.
	520	18…	96	97	128	107	—	This skull is remarkably brachycephalic, the cephalic index being 840. Out of 32 ancient Egyptian skulls described by Professor Flower in his Osteological Catalogue, Part I, "Man," only two reached 800, the highest being 807. Mr. Flower also records only one case in which the orbital index reaches 1,000, which is the index of this specimen.

…n is given in cubic centimetres.

down to the big Nile Delta Δ, and on into the Mediterranean. The cliffs are full of shells and flints. Those being harder and heavier remain; sorted in side deltas, and piled in heaps between the waterways. The hot sun and the sand storms, and the daily north wind work on the flints and wear them; and sculpture stones according to their relative hardness. I have agates worn by the sand blasts according to their hardness; and black flints polished by drifting white flint sand, which looks like beds of drifted snow on the hill sides.*

"Yesterday I went flint hunting with Mr. Meyer, who seems to know what he is about. We crossed to the west bank, the "left," and rode north past Gourneh Temple, and past several dry water-courses, including the waddy, which is "The Gate of Kings," *Bab el Maluk*. In the pyramidal mountain which makes the south side of that waddy are the tombs of the kings, which give a date to the latest phase of this sort of geology.

'The Temples which are older than B.C. 200, are scattered because of the work of the great earthquake, which ruined them. Some stand upon mud, some on gravel.

'Tombs in the flint gravel, and tombs dug out of the limestone, are dated some six to eight thousand years ago, by experts in Egyptology. It follows that the natural sculpture of the side cliff, and the high mounds of flint left, are old beyond my powers of calculation; but manifestly older by far than the oldest history read in the tombs. We passed over the low flint gravel, and found an infinity of broken flints, which looked quite fresh, and may be modern human work. Then we spread like a company of sharp-shooters and made for a black hillock. There the ground is old, and a pile of flints left between a couple of waterways. There also the flints have been broken, and there the fragments look old. Some of these flints weather white, some black; and many of the flint flakes are weathered like the unbroken stones. I have no doubt that these are very old works of human art. We loaded our Arab guide with select samples, and we might have loaded carts and camels with flint flakes. But we did not find a single worked weapon: a barbed arrow or a spear-head, or anything neolithic. Flakes and flints from which flakes had been struck off, we did find in great abundance; and manifestly of very great age. I fancied that I could make out high water levels sweeping round the base of the mounds of flints, the remains of the crumbled cliffs, which now bound the Nile hollow, and may have bounded an arm of the sea before the history of Egypt, and Egypt itself began to be.† So far this relates to the ground over which we travelled together; and to worked flints strewn upon the surface, which abound in Egypt.'

* These sand-drifts are conspicuous all the way to Aden, on both sides of the Red Sea; and so far as I have seen on both sides of the Nile hollow.

† I have often looked for sea margins, but I have never been able to satisfy myself of their existence in Egypt and along the Red Sea.

Luxor, March 7, 1881.

. . . . 'II. Yesterday will probably make a paper for the learned Societies, on flints, &c., so I may as well write my private paper to you for comparison, without consultation with General Pitt Rivers.' (The letter repeats in substance, with diagrams, the view taken of the superficial geology of the Nile hollow).

'Any delta at the end of any Scotch glen serves to show the growth of deltas all over the world. I have been pouring water on Nile mud, and so digging water furrows, and watching deltas grow out of the furrows here. A furrow having been made by a rain storm, the waters collected in the furrow shoot out the stuff at a lower level. The oldest stuff is the lowest, the newest stuff is shot over the oldest, and when a mound has grown big enough, stuff is shot right and left. The present condition of the fan-shaped combined deltas of the side furrows carved in the Nile cliffs, is that water streams shot right and left Δ, cutting furrows in the old gravel. The limestone at the hill tops 1,400 and 1,500 feet above the Nile, and down to the bottom of the furrows crumbles to the touch. I have often picked out flint fossils with my fingers . . . Where a stream has cut a section through the gravel, the structure of it tells the story of the birth and growth of a delta . . . Time and lime have cemented this Egyptian delta formation into a sort of breccia which needs hard hammering to break it up. It extends from Assouan to Cairo. The temple at Gourneh stands upon it. Till yesterday I had not realised that the "Gate of Kings," has rows of tombs of each side for miles. I crossed this "street," at the level of the present bed of the streams which flowed last time many years ago. Right and left for a very long way tombs are driven horizontally into gravel cliffs cemented by lime water into the seeming of an old conglomerate. These tombs are cut like a coal gallery in a mine, and stand open like a row of doors in a street, divided by square pillars. Above this street of tombs are deep pits, sunk into hard gravel, old tombs now opened by Arabs and others. . . These upper streets, peopled by mummies, extend up to the first limestone cliff. The cliff face has been smoothed and plastered and painted, and long squared passages are driven horizontally into the limestone. These doors stand open now, and rows of them extend up to near the top of the ridge, 1,400 feet. "The mountain in the west where Thoth abides," now called Djebel Asas, was the mausoleum in which Egyptians shelved the dead people of Thebes. There is no sort of question about the antiquity of temples and tombs in which inscriptions tell the story: 1500 B.C. the shape of the street of tombs was much the same as it is now. The delta of this waddy had been built and cemented, and a late direction had been given by it to running water, which caused the water to undercut the hard gravel and make cliffs, before the tomb, however, drove their galleries into the gravel. "If you, with your knowledge and authority, can find anything of human work in that hard gravel," said I to P. Rivers, "you will find something beyond calculation older than these Egyptian

temples and tombs." He went back, and he found worked flints in the hard gravel.

'Yesterday we went together. We sought in the walls of hewn tombs for ends of flints. When our authority pronounced favourably of the appearance of an end, James (my servant) and I hammered and worked about it, till it was got out. Many were rejected, many were selected, one had been cut off in hewing the tomb. It came out a finished "flake," with the bulb of percussion far inside in the hard gravel. I am witness to the find and its place. It is a work of human art according to a good judge.

'It belongs to the geological delta formation, and beyond question it is older beyond calculation than the tomb which was cut into the gravel, and cut through the end of this particular flint flake. We got more, and they are being marked for the famous collection at South Kensington.

* * * * *

'This is my story of yesterday's work, which may yet live in history as a date from which to calculate the antiquity of man.'

"These extracts may serve to confirm the statements made, and the explanations given in the paper which I heard read.

"My own work at Luxor was about sunshine, and experiments on light. I paid a visit to the dwellers in the Gourneh tombs, to Mohammed and his family, who guided Mr. Meyer first, and me afterwards, and I sketched some of them at work on the modern antiques, which they carve with great skill. They live in tombs. I sought in their hewn gravel walls for flint flakes, with my servant; but we were not fortunate enough to find any that time. It needs a skilled hunter, and patience, and time to unearth these buried works of human art. Now that this find has been made by a skilled authority, I have no doubt that works of men's hands will be found abundantly underlying the oldest history in the world; in the hard gravel which underlies the mud of the Nile hollow, from Cairo to Assouan.

"I am, yours very truly,

"J. F. Campbell, F.G.S.

"To General Pitt Rivers, F.R.S."

Description of Plates XXVII to XXXVI.

Plate XXVII.

Plan of Thebes, showing the position in which the flints were found. A.B.—El Waddi (*see* also the section fig. 15, Plate XXXIV). C—the tombs in the side of the waddy near which the flints were found. D—Elwat-el-Deban or the "Hill of Flies." E—Gebel Assart.

PLATE XXVIII.

Implements of chert found on the surface near the tomb of Meri-Ka-Ra, Asyoot—

Fig. 1. A kind of celt, at the lower end, and narrowed to a tang at the top for insertion into a handle.

Fig. 2. A kind of maul, similarly constructed at the top.

Fig. 3. A flake. All half size.

PLATE XXIX.

Fig. 4. Chert implements of palæolithic form. Found near the highest flood mark below Gebel Assart (three views).

Fig. 5. Chert implement resembling neolithic form. Chipped; found in the bottom of El Waddi (three views). All half size.

PLATE XXX.

Fig. 6. A hollow scraper for planing round surfaces (three views, half size). A—the side towards which the implement was drawn in planing. B—the other side. C—the section. Found on the surface at Gebel Lahamare.

Fig. 27. View showing the formation of a fan in Ladakh. Extracted from Mr. Drew's paper in the "Quarterly Journal" of the Geological Society of London, vol. xxix.

PLATE XXXI.

Figs. 7 and 8. Drawing of two chert bracelets; found in tombs near Koorneh. Full size.

PLATE XXXII.

Figs. 9 to 13. Specimens of chert morpholites, from which the bracelets are believed to have been formed.

Fig. 9. A perfect specimen (two views).

Figs. 10 and 11. Two, chipped by the flint workers.

Fig. 12. One split in half, showing the concentric rings in the interior.

Fig. 13. Half a ring from which the central spheroid has been detached. All half size.

PLATE XXXIII.

Fig. 14. A remarkable specimen of a chert knife, found near Kom-Ombos. Supposed to be a sacrificial knife. (Two views.) Half size.

Fig.15



SECTION ALONG THE LENGTH OF EL WADDI, SHOWING THE POSITION OF THE TOMBS AND WORKED FLINTS.

Scale of paces for Fig.15.

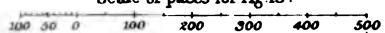
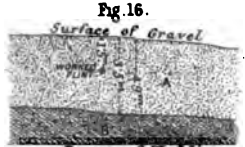


Fig.16.



2ND SECTION.

A. Waterworn gravel of flints, mud and limestones; stones 4 to 6 inches across, subangular and rounded.

B. Ochreous sediment with occasional flints and limestones.

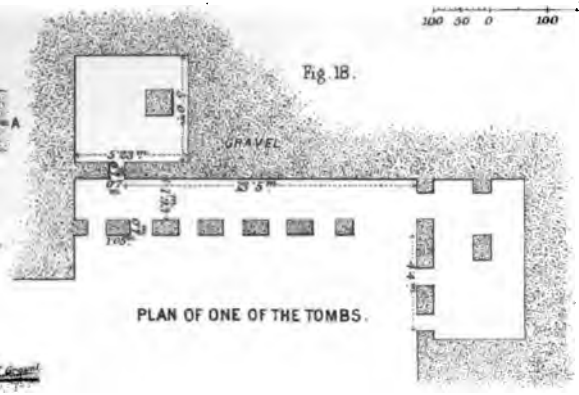
Fig.17.



1ST SECTION.

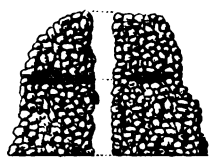
A. Seam of mud.
B. Tombs.
C. Gravel.
+ Position of flints.

Fig.18.



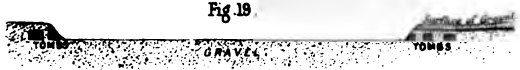
PLAN OF ONE OF THE TOMBS.

Fig.21.

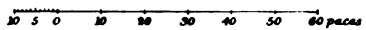


POSITION OF FLAKE IN SIDE OF TOMB.

Fig.19.



SECTION ACROSS WADDI AT 1ST SECTION.



Scale of mètres for Figs. 16, 17, 18 & 20.

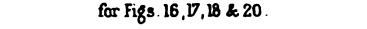
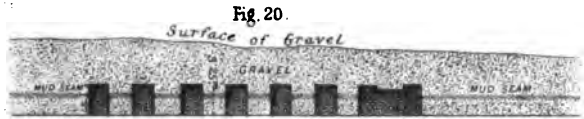


Fig.20.



ELEVATION OF ONE OF THE TOMBS.

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PLANS AND SECTIONS AT EL WADDI, SHOWING THE POSITION OF THE IMPLEMENTS.

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Fig. 22.

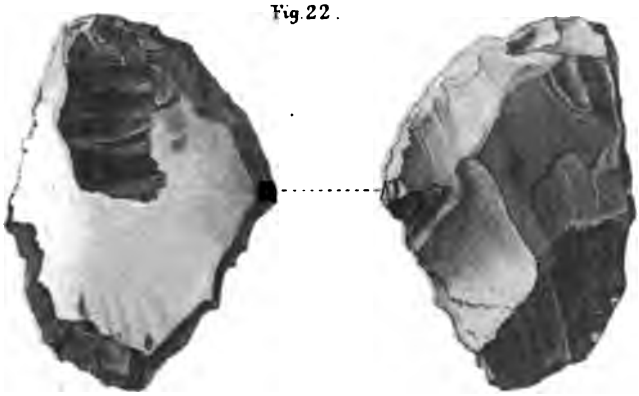


Fig. 23.

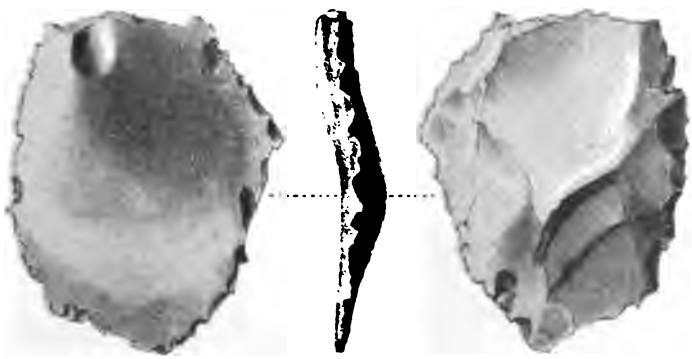


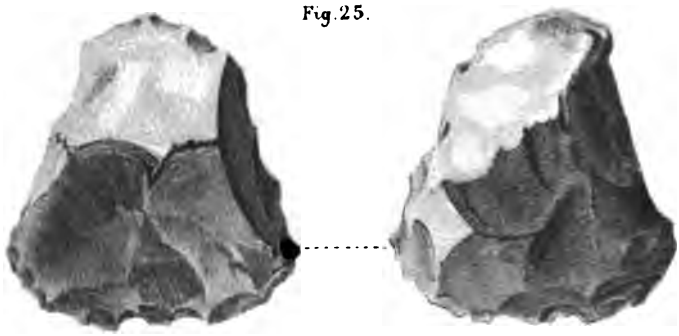
Fig. 24.



Hannart, lith.

CHERT FLAKES FOUND IN THE GRAVEL
AT THE SIDES OF EL WADDI.

Fig. 25.



FOUND 1·6M. BENEATH SURFACE IN GRAVEL
IN WHICH TOMBS WERE CUT. EL WADDI, KOORNEH.
HALF SIZE.

Fig. 26.



FOUND IN TALUS OF GRAVEL IN WHICH TOMBS WERE CUT
EAST OF TEMPLE OF KOORNEH.
HALF SIZE.

PLATE XXXIV.

Fig. 15. Section along El Waddi; see A.B. on the map of Thebes (Plate XXVII), showing the positions of the tombs and the positions in which the chert implements were found.

Figs. 16 and 17. Two portions of the above section enlarged, showing the position of the seam of mud in the gravel, and of the flakes and tombs.

Figs. 18 and 20. Plan and elevation of one of the tombs in the side of El Waddi.

Fig. 19. Section across El Waddi showing the position of the tombs.

Fig. 21. Two views showing the position of a flake in the gravel on the side of one of the tombs, and the position of the bulb of percussion.

PLATES XXXV AND XXXVI.

Figs. 22 to 26. Flakes and one implement found in the gravel on the sides of the waddy in which the tombs were cut.

Figs. 22, 23, and 26. Two flakes and one core found in Section 1, fig. 17, Plate XXXIV.

Fig. 24. A flake, the position of which is represented in Fig. 21, Plate XXXIV.

Fig. 25. Implement found in Section 2. fig. 16, Plate XXXIV. All half size.

DISCUSSION.

Professor BOYD DAWKINS remarked that while General Pitt Rivers was working out the palæolithic deposits near Thebes, it was his good fortune to study at Boston a collection of palæolithic implements from the same place, made by Professor H. W. Haynes, in 1878, and shown at the Paris Exhibition in that year. Some of the hâches discovered at Bab-el-Moluk, the Tomb of the Kings, at Luxor, were of the types Acheulien, and Mousterien of Mortillet. There were also lance-heads and scrapers. The importance of General Pitt Rivers' explorations consists in the fact that they prove that these palæolithic implements are contemporaneous with the gravel in which some of the tombs are hollowed.

It is not a little strange that the implements of the river-drift then should be of exactly the same types, wherever they have hitherto been discovered. It may be inferred from their identity that the palæolithic man who hunted the arnee and the extinct hippopotami in the forests of India, who wandered over Palestine

and the valley of the Nile, who hunted the wild-boar and stag, the mammoth, and possibly the pigmy hippopotamus in the Mediterranean region, was in the same rude stage of civilisation as the hunter of the reindeer, bison, woolly rhinoceros, and horse in the forests of France and Britain. Here we are face to face with a condition of primeval savagery formerly universal.

NOVEMBER 22ND, 1881.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and the thanks of the meeting voted to the respective donors :—

FOR THE LIBRARY.

From Sir JOHN LUBBOCK, Bart., F.R.S.—A collection of pamphlets, by various authors, bearing upon Anthropological Subjects.

From LUCIEN CARR, Esq.—Report of the United States Geographical Surveys west of the 100th Meridian. Extract from Part 1, Vol. VII, Archæology.

From Dr. HOFFMAN.—The Gesture Speech of Man. By Colonel Garrick Mallery.

From the AUTHOR.—Corrigenda and Explanations of the Text of Shakespere. By George Gould.

—— Notes sur l'archéologie préhistorique en Portugal. By Em. Cartailhac.

—— Die statistischen Erhebungen über die Farbe der Augen, der Haare und der Haut in den Schulen der Schweiz. By Professor Dr. Kollmann.

—— On the so-called Chukchi and Namollo people of Eastern Siberia. By W. H. Dall.

From the STATE BOARD OF HEALTH OF MASSACHUSETTS.—Second Annual Report, 1880. Supplement containing Report and Papers on Public Health.

—— Thirty-ninth Report to the Legislature of Massachusetts relating to the Registry and Return of Births, Marriages, and Deaths in the Commonwealth. For the year ending December 31, 1880.

From the INSTITUTION.—Journal of the Royal Institution of Cornwall, Part 1, Vol. VII.

From the INSTITUTE.—Catalogue of the Library of the Royal Colonial Institute, October, 1881.
From the SOCIETY.—Proceedings of the Birmingham Philosophical Society, Vol. II, Part 2.
—— Journal of the Society of Arts, Nos. 1512, 1513.
—— Journal of the Asiatic Society of Bengal, Vol. L, No. 243.
—— Journal and Proceedings of the Royal Society of New South Wales, 1880.
—— Bulletin de la Société Impériale des Naturalistes de Moscou, 1881, No. 1.
—— Zwanzigster Bericht der Oberhessischen Gesellschaft für Natur-und Heilkunde.
From the EDITOR.—"Nature," Nos. 627–629.
—— Revue Scientifique. T. XXVIII. Nos. 20, 21.

The election of C. POUNDES, Esq., was announced.

The following paper was read by the author:—

Notes on the ASIATIC RELATIONS *of* POLYNESIAN CULTURE.

By EDWARD B. TYLOR, D.C.L., F.R.S., V.P.A.I.

THE following informal remarks are made with the view of bringing some lately noticed facts to bear on the problem of tracing certain drifts of culture, which appear to have been going on for ages, from the interior of Asia over the south-east or Indo-Chinese region and the Indian Archipelago, and thence into the island groups of Melanesia and Polynesia, even touching points of Australia. Of late years several papers on this subject have appeared in the "Journal of the Anthropological Institute," among them Colonel Yule's tracing of Asiatic customs into the Indian Archipelago, and Mr. Keane's account of recent researches on the Khmer language of Cambodia as related to the Oceanic tongues.

The author of the present remarks has mentioned the spread of Asiatic games over the Oceanic islands, and the wide acceptance there of the cosmic-theological doctrine of the world being divided into upper and lower stages, seven or more in number, an idea which seems plainly a broken-down remnant of the Brahmanic and Buddhistic doctrine of series of successive heavens and hells, itself apparently the outcome of the theory of concentric planet-spheres, known to the Pythagorean philosophy, and seemingly traceable to yet older Babylonian astronomical ideas, to which the seven-staged temple of the seven planets at Birs-Nimrud still bears witness. The theory of the Asiatic drifts of culture over the Pacific having now a

substantial basis, it is desirable to call attention from time to time to points likely to affect it.

Mr. Carl Bock's lately published "Head Hunters of Borneo," gives a clearer idea than heretofore of the civilisation of the Dayaks, as holding an intermediate place between the Hindu civilisation, which has acted on them both in its Brahmanic and Buddhistic form, and the lower culture of the South Sea Islands. Had this traveller taken his ideas of Dayak architecture only from their village-houses, he would have underrated the traditions of ornamental design and artistic skill which he discovered when allowed to visit and sketch the secluded burial-houses of the royal families, structures on posts, adorned with animal carvings and wooden sculpture of remarkable lightness and beauty, the carved roof-projections somewhat reminding us of Cambodia and Siam. To those who have examined such types of architecture in the Malay Archipelago, it cannot seem probable that Polynesian architectural design, such as is seen in New Zealand, was the result of merely native development, but rather that it involves inherited, though broken-down traditions of Asiatic art. Attempts thus to connect Polynesia with Asia have not yet been carried far in detail, except perhaps in tracing the dwellings supported on posts or piles from such Asiatic districts as Asam far away into the ocean islands, and in General Pitt Rivers' identification of the Buddhist loop-coil ornament with a similar pattern used in New Guinea and New Zealand.

It seems worth notice that one of the Dayak musical instruments figured by Mr. Bock lies in an instructive way on the supposed line of drift of civilisation. This is the nose-flute (*op. cit.*, Plate XIX, fig. 2) a specimen of which from his collection has come to the British Museum. There is a drawing in Williams and Calvert's "Fiji and Fijians," p. 163, which shows a native girl performing on this instrument with the right nostril, while she stops the other with the thumb. In the Polynesian Islands, from the time of Cook's voyages, there are several mentions of the nose-flute. Ellis's account of the *vivo* of the Society Islands ("Polynesian Researches," Vol. i, p. 197) describes its being played much after the Fijian manner, but usually with the left nostril, and it is an instance of the slight variations of custom which establish themselves as fashions, that Mariner's "Tonga Islands," Vol. ii, p. 332, describes the *fango fango* as always filled by the right nostril. The instrument is commended by travellers for its soft plaintive tones, which often served as an accompaniment to singing. It may be traced as far as New Zealand (*see* Williams, "New Zealand Dictionary," s. v. *Kōauau*). In Waitz, Vol. vi, p. 752, it is

stated to have been observed at Port Essington, in North Australia, where probably it had been introduced by Malay traders. In all these districts the nose-flute seems not to have any practical reason, at least it is hard to imagine that any flute-player should find his nostrils to have any musical advantage over his mouth. In India, however, where the *vansi* or *pungi* have long been filled with the nostrils by snake charmers, performers at the festival of Nila-pûja, &c., a reason for this practice is currently given which may be the true explanation of its origin. A high-caste Hindu will not touch with his mouth a pipe or flute which has touched the mouth of a lower-caste man who made or may have used it, but it does not defile him to blow it with the nostril. This explanation (*see* Engel, "Music of Ancient Nations," p. 59) is stated to me as unquestionable, in answer to an enquiry made of Dr. Sourindro Mohun Tagore, of Calcutta, the best authority on Hindu music. If it be accepted as the real explanation, we may think it probable that the nose-flute, thus introduced for ceremonial reasons, followed the course of Hindu colonisation and influence, so as to become established for ordinary musical purposes in islands of the Pacific where its ceremonial caste-origin was unknown. Another Asiatic musical instrument which has found its way far out into the Indian Islands, is the simple kind of jew's harp made of a slip of bamboo.

Professor Adolf Bastian's lately published "Heilige Sage der Polynesier" gives, among the valuable results of an anthropological journey, some fresh details as to the Maori and Hawaiian mythology, which suggest to him the thought of derivation from Old World religion and philosophy. Are these, he asks, the simple playful children of nature, whom we look down on from our heights, as on men climbing the lowest steps in the development-ladder of civilisation, and yet out of whose dark primeval night there sound chords of remotest and earliest creation-history? In the Polynesian creation-poems of evolution, from zoophytes and insects to fish and pigs and man, or along the metaphysical stages of existence beginning with night, nothing, ignorance, which Bastian compares with the Buddhist chain of existences, there is, perhaps, rather a likeness in principle than an absolutely proved connection in detail with the mystic philosophies of Asia. To come to something more definite in mythological resemblance and perhaps connection, Professor Bastian lays stress, not for the first time, on the similarity between the Polynesian myth of the land being a huge fish drawn up from the depth of the ocean, and the old Scandinavian myth of Thor fishing up the great earth snake, the Midgard-worm. The resemblances are, indeed, remarkable,

even in minor points, as when in the Norseman's tale, Thor goes out in the boat with Ymir, but is obliged to provide his own bait, much as in the New Zealand story is done to Maui by his brothers. Even the name of the ox Himinbrjót, or Heaven-breaker, whose head Thor takes for his bait, reappears in the Hawaiian mythology, where the noonday sun is called the Heaven-splitter. Looking at the myth of the raising of the land-fish in its different forms in the South Sea Islands, its being a myth of Day and Night is hardly doubtful, for the fisher who hauls up the earth from the abyss below is called in one version Noon, and in another Day, while the statement that Maui's fish, the North Island of New Zealand, was drawn up from the region of the underworld of night, occurs in the most distinct way. Without asserting a positive connection between the South Sea Island and the Scandinavian stories, the subject may be taken as pointing to further enquiry likely to lead to interesting results. The possibility of such connection in mythology between the South Sea Islands and Northern Europe is proved almost beyond dispute by the occurrence in both districts of versions of the Swan-maiden or Swan-coat story, where a heavenly nymph comes down to earth to bathe, and is seized by a mortal man, who makes her his wife, but at last she flies back to her home in the sky. The original of the story may be Aryan, from Central Asia, whence it found its way, perhaps in times of no great antiquity, westward over Europe, and eastward down to the Indian Ocean, where one of its best versions is found in Celebes, another lying yet further across the ocean in New Zealand (*see* Tylor "Early History of Mankind," p. 355).

The present slight notes, only to be taken as suggestions in a problem which has to be worked out more elaborately, refer not to questions of race, but merely to the drift of civilisation from Asia across the further Eastern and Oceanic districts. How far this culture was carried by actual migration of tribes, or by slighter influences of intercourse of races with one another, is a difficult problem on which it would be premature to enter here.

Discussion.

Mr. A. H. Keane expressed the pleasure with which he had listened to Mr. Tylor's able paper, tending as it did to bring the Continental and Oceanic races into still closer connection. At the same time he could not accept the numerous points of resemblance in manners, customs, and habitations, as arguments strengthening the position he had himself taken with regard to the fundamental

unity of those races. These common features could at most prove nothing more than later contact, and the spread of Asiatic culture to the adjacent Eastern Archipelago. For the history of civilisation the paper was very valuable, and seemed to show that intercourse had been established between the more advanced Eastern peoples at a far more remote epoch than is commonly supposed.

Dr. HACK TUKE said he hardly thought the difficulty or criticism suggested by the last speaker (Mr. Keane), namely, that Dr. Tylor's argument might prove an example of *quod nimis probat, nihil probat*, would really be so if used with the caution which Dr. Tylor would no doubt employ. In the lecture on Games, for instance, which he had heard him deliver at the Royal Institution, he remembered that in taking kite-flying as an illustration, he pointed out that that game alone would not be an evidence of the contact of two nations, but that it might fairly be so if the kites were constructed in a special manner in both instances. The value of this kind of reasoning altogether depended upon the care with which it was employed. Again, he understood the author of the paper just read to employ this argument to prove, not identity of races—for of that it could be no proof—but that there had been contact and intercourse between them. Whether the instance chiefly referred to—that of the nose-flute—was a convincing instance or not, he did not feel prepared to say. It certainly did seem possible that different people, without copying the custom, might independently use their noses instead of their mouths to blow with. On other points he regarded Dr. Tylor's paper as a fair proof that the stream of civilisation, or rather habits and customs, had spread from the Asiatic continent to these islands, and regarded it as an illustration of the kind of reasoning applied to ethnic questions, in which Dr. Tylor appeared to him to excel.

M. DE LA COUPERIE, Mr. PARK HARRISON, and the CHAIRMAN also took part in the discussion.

Dr. TYLOR stated, in reply to a question, that although the doctrine of the planet-spheres first appears in a distinct form among the early Greek astronomers, there are strong grounds for inferring its connection with the seven stages of the Babylonian planet-temples. With regard to the question of race-connection between Polynesia and Asia, his present argument of course in no way opposed this, but could contribute nothing to its establishment, such things as musical instruments and myths migrating from nation to nation by mere intercourse, quite independently of race and language.

Dr. TYLOR, in the absence of the author, read the following paper:—

On FIJIAN RIDDLES. By the Rev. LORIMER FISON, M.A.

INTRODUCTION.

THE riddle is called in Fiji *Vákavŭtavŭtaíralángi*, a word which doubtless has something of great interest hidden in it. *Vatavata* is a house built on piles; *i* = *of*; *ra* is the plural sign used before the names of chiefs; and *langi* is sky.

In east Fiji the word is *Vákasīrindrōndrōlángi*. *Siri* (= Mbau *siro*) means to come down from a height; *ndrondrolangi* is the rainbow. The explanation given by the natives here is that, as the rainbow starting from the middle of the arc goes down in two directions, so the riddle has two meanings.

Riddle-propounding is quite an institution in Fiji. Sides are formed, each of which propounds a riddle in its turn, and the party which guesses the greater number is entitled to a feast at the expense of the vanquished. The propounders issue their challenge by chanting *Vatavataíralangi mai tu*—(Here is a riddle). Their opponents accept the challenge by chanting in reply *Mai tulituli thavatu?* a saying not easily translated. Literally *tulituli* is pottery-making, but the word is used colloquially in the general sense of doing anything, *e.g.*, *A thava ko a tulia tiko* = What have you been about? The riddle is then propounded by the spokesman of the party, and their opponents go into consultation.

A point of considerable interest in connection with the word *vatavata* may be noted here. The ordinary Fijian house of any pretensions is built upon an artificial mound; and the greater the chief the higher his house-mound, that of the *Mbure-kalou* (god's house, or rather ancestors' house) being highest of all. "Their house mound is high," said of a family, means that they are of high rank. The *vatavata*, or house on piles, among these people is probably a survival, or perhaps a trace of the commingling of two races with different forms of architecture.

Even when the house is built on the level ground we find a reminiscence of its former elevation in the common invitation to enter *Thambe mai* ("Come *up* hither"). Sibree notes the same phrase in Madagascar, but supposes it to point to a time when the villages were always built on fortified heights ("The Great African Island," p. 156). It seems more likely that it points to the ladder leading up to the house on the mound, or on piles. All this, however, is a digression; but in writing on these subjects one is continually tempted to disgress.

The following riddles about the gun, the white cowry, the two fish, and the cotton-bag, show that riddle-making is still going on in Fiji.

SELECTED FIJIAN RIDDLES.

1. *Riddle.*—I spit, and spit, and spit all the way to Tonga? —*Answer.* The canoe baler, which is kept continually at work in a seaway.

2. *R.*—I stand erect all the way to Tonga?—*A.* The mast.

3. *R.*—I am in soak all the way to Tonga?—*A.* The steer-oar, which is lifted out of the water only when the voyage is over. This explains the following riddle:—

4. *R.*—I dive in Fiji, and come up again at Tonga.

5. *R.*—Two fish are feeding in the sea. One eats with two mouths, the other with only one?—*A.* A double canoe, and a white-man's vessel.

6. *R.*—A little child. When a full-grown man dives, it dives with him. The man is soon breathless, but the child is not?—*A.* A louse!

7. *R.*—A Catholic priest in a long black coat. We go to see him, and he takes off his coat?—*A.* The white cowry. While undisturbed it spreads itself over its shell. When disturbed it retires into the shell.

8. *R.*—A man who carries the "kitchen stuff" with which he is to be eaten?—*A.* The taro (*Arum*) and its leaves. The leaves of the taro are boiled, and eaten together with the tuber.

9. *R.*—Twenty men with white turbans?—*A.* Fingers and toes.

10. *R.*—A land. I squeeze it in my hand, it is hidden. I release it, it is a land again?—*A.* A sponge.

11. *R.*—I enter a house, and run away with it?—*A.* Hermit-crab.

12. *R.*—A lake filled with water. Presently a white cloud rises in the midst, and drinks the lake dry. Then the cloud grows, and has leaves?—*A.* The cocoanut. When about to shoot, the milk solidifies into a soft white substance.

Note.—There are several versions of this riddle, *e.g.*, "A little child leaps into a lake," "a coral rock grows up in the *ndaveta*, or reef-entrance," &c.

13. *R.*—Grass wraps stone, stone wraps food. Literally, "Wrapping, Sir Grass wraps Sir Stone. Wrapping, Sir Stone wraps Sir Food"?—*A.* The cocoanut with its fibrous husk, hard shell, and kernel.

Note.—There are numerous riddles of this kind.

14. *R.*—A man. When he is born, he does not cry; while he is growing he does not cry; when he is full-grown he does not

cry; but when he is very old then he weeps?—*A.* The cocoanut which sheds its milk only when it begins to decay.

Note.—Any number of this sort of riddle might be given, *e.g.*, "A man—when a child he was clothed, now that he is grown up he scorns clothing;" the bamboo, which sheds its sheathing.

15. *R.*—I pierce the world, and come out on the other side?—*A.* The root of the Ngi grass which frequently grows completely through the growing yam.

16. *R.*—Two men fight every day and all the day. Their fighting ceases at night, and begins afresh in the morning?—*A.* The eyes.

17. *R.*—Far to Mbulu (Hades), far to Langi, (Sky)?—*A.* The stopper of the waterpot.

18. *R.*—It speaks as I take it to the salt-water, it is silent as I return?—*A.* The *kitu*, or large cocoanut shell, used for carrying salt water. As it goes empty to the beach the wind blowing across its orifices, causes it to sound; when full of water it emits no sound.

19. *R.*—There is a chief who only speaks, and fowls, and pigs and men fall dead before him?—A gun.

20. *R.*—A little child runs to and fro. As it runs a mist arises, and then the sun appears?—*A.* The fire-rubber, which in Fiji represents the fire-drill of other lands.

21. *R.*—The chiefs are in council. A base-born fellow comes and scatters them?—*A.* The stones used in heating the Fijian oven. When they are hot enough a stick is used to stir them up, and arrange them at the bottom of the oven. They are heaped together while being heated.

22. *R.*—Three fish, one on the top of the other. The shark below, the sting-ray in the middle, and the mullet leaps on the top?—*A.* The board on which the bark of the paper mulberry is beaten into *masi* (Tonga *tapa*) or native cloth; the cloth lying upon it; and the *ike*, or mallet with which the bark is beaten.

23. *R.*—White water on this side, white water on that side, deep water (*waitui loaloa* = dark coloured saltwater) in the middle. (Or shall we say "breakers on this side, breakers on that side, deep water in the middle"—literally "White water on this side, white water on that side, black water in the middle." *Waitui loaloa*—black or dark salt water, is used for "deep-water")—*A.* The eye.

24. *R.*—There are twelve women who conceive at different times, but all give birth on the same day?—*A.* A nest of eggs.

25. *R.*—A child who reaches up to the shelf. He can reach

the big upper shelf, but he cannot touch the little lower shelf. He is too short for it?—*A.* The hand which can touch the shoulder but cannot reach the bend of the arm.

26. *R.*—A stranger who comes to Fiji to eat. His feast is made ready; he eats it all, and is satisfied, eating no more for several months. Then he goes back to his own land, and his belly is emptied?—A cotton-bag.

27. *R.*—A house filled with food, and so straitly shut up, that no man can find the door. Then comes to pass a wonderful thing. The food becomes a man.* Only one man, but he fills the whole house. By-and-bye, he opens the house, leaps outside, and runs away, leaving the house burst and destroyed?—An egg.

28. *R.*—There are two who are always fighting, and to their fighting there is no end. One of them gets the better of the other for a long while. But at last there comes a day when he falls asleep. As he lies sleeping his *tutuvi* (covering) is thick and very heavy also. Then comes his enemy whom he used to conquer, and seats himself upon him, and oppresses him, and triumphs mightily over him?—*A.* Man and grass. In man's lifetime he keeps down the grass in his plantations, &c., but when he dies, and lies under the thick heavy "grave-tutuvi," the grass grows over him.

29. *R.*—A box into which goods are continually poured, but which is never full?—*A. A yalonda*—which the reader may translate "our souls," "our minds," or "our desires," as he pleases.

30. *R.*—There are two from whom we are continually begging. They give without stint or grudging?—*A.* Earth and water.

31. *R.*—In the morning it has four feet, and in the broad day it has two feet; when the sun is near setting it has three feet?—*A.* A man.

When I first heard this sphinx-riddle, more than 100 natives were present. "You got that from white man's land," I said, and straightway there arose a clamour of denial. Old men declared then, and have often since assured me, that they used to hear the riddle when they were little children.

I subjoin a specimen of a Fijian fable.

THE TERI† AND THE RAT.

The *teri* and the rat were great friends. One day they found a bunch of bananas, "I'll climb after those bananas," said the *teri*, "you stay below while I climb." "All right," said the rat.

* There is a nice play upon words here, which is lost in the translation. *Tamata* means both "man" and "addled."

† *Teri*, a long-legged bird haunting the muddy banks of rivers.

So the *teri* climbed up, and ate the bananas, and threw down the skins to the rat.

Then said Mr.* Rat, "Let us go to the reef," and there he found a *vasua* (gigantic oyster). He called his friend, "Come and take this food." The *vasua* was open, and Mr. Teri put in his foot to scratch out the flesh, whereupon the *vasua* shells closed upon him, and held him in a vice. He cried out "Alas! Sir Rat, I perish!" The rat said, "That pays you out for the bananas. You ate the good of them and made me wretched with the worthless part. Stay there and be drowned when the tide makes. As for me I am going to return alive to the shore."

I cannot resist the temptation to add the following "moral," appended to the foregoing fable by one of my Fijian students. I translate from his MS. now before me.

The *teri* is the rich man. The rat is Lazarus. The bunch of bananas represents the lordly state of Dives, while Lazarus was wretched. The reef is death. The *vasua* which caught the *teri* is the everlasting fire to which Dives went. The land, Heaven is its name.

Dr. E. B. TYLOR then read a paper "On the Affinity of the Melanesian, Malay, and Polynesian Languages," by the Rev. R. H. CODRINGTON. The discussion upon this communication was adjourned until the next meeting.

The following paper was read for the author by the Assistant Secretary:—

On the STATURE *of the* INHABITANTS *of* HUNGARY.

By JOHN BEDDOE, M.D., F.R.S., M.A.I.

SOME attention has of late been paid to anthropometry in Hungary, particularly by Dr. Körösi, and by Dr. Scheiber, of Bucharest. Of the results of their investigations some have considerable interest. For example, Körösi, operating on the recruiting returns for the whole of Hungary, found that the several races of that country stood in the following order, reckoning for the tallest to the shortest. First the Vends on the Styrian frontier, then the Germans, then the Croats, then the Slovaks and Serbs, then the Jazyges (people of Jaszag in Central Hungary, a Turanian race), then the Jews, then the Rumanians, then the Magyars, then the Ruthenians (in the Bukowin I suppose) and lastly the Kunen (query Kumanians).

* *Ra*, the plural sign.

Between the tallest and the shortest of these races he finds an average difference of 32 millimeters, or about 1¼-inch, which is perhaps less than one would have expected.

The mean stature of recruits from 19 to 22 years of age is put by Körösi at 1,631 millimeters (5 feet 4·2 inches). Scheiber calculates it at 1,646 millimeters (5 feet 4·8 inches). The real mean seems to me, on Scheiber's data, to be about 1,650= 5·5 inches very nearly, and if we allow 17 or 18 millimeters for subsequent growth, which is probably not above the mark, the fully grown Hungarian soldier is about 1,668 millimeters or 5 feet 5⅝ inches in stature. The number excluded for insufficiency of stature is about 9 per cent., the standard being fixed at 1,554 millimeters, about 5 feet 1⅛ inch.

Dr. Scheiber's paper in the "Archiv für Anthropologie" is of great importance. Referring to Körösi's statistics, he points out the greater value of observations dealing with the entire male population of military age; and he accordingly bases his conclusions upon the whole number of young men of twenty years, examined by the recruiting authorities, whether passed or not, in five counties of Western Hungary, viz., Budapesth. Stuhlweissemburg, Raab, Wesprim, and Tolnau. These he divides according to their nationalities into Magyars, Germans, Slavs, and Jews; he also separates the cities of Budapesth, Stuhlweissemburg, and Raab from their respective counties, but in this second analysis takes no account of race.

In stating his results he gives the mean and not the average. Neither method would indicate the full actual stature, as the recruiting officers set down the measurements in Austrian inches, omitting fractions. It is probable that the officers, except at the point where the question of exemption for insufficient stature comes in, and where the interest of the examinee renders him anxious for accuracy, will assign to each inch a few individuals who are really below the line, but approach it within a very small fraction: thus, against the heading 64 inches will be placed the names of men who measure 63·9 inches, as well as of those who reach 64·8 inches. The true average, and the true mean, would probably be about 64·4 inches. Of these considerations Dr. Scheiber takes no heed; and in every instance he simply states the number of millimeters corresponding to the Austrian inch at which the largest number of persons is registered. This method leads to certain incongruities, and usually gives a result below the true mean and the true average.

I have endeavoured to ascertain from Dr. Scheiber's statistics, the exact mean, the standard which would be overpassed by exactly 50 per cent. of the persons measured. The numbers, though considerable, are not sufficient to yield very regular

curves; but I believe I shall be found pretty close to the mark in every case. This mean will, I believe, correspond pretty exactly with the true average stature.

That of the—

Germans	is	1,646 met.	=	64·8 inch.
Jews	„	1,638 „	=	64·5 „
Slavs	about	1,636 „	=	64·4 „
Magyars	„	1,636 „	=	64·4 „

The addition of 17 or 18 millimeters or about 6 or 7 inches, to these figures, would probably give, approximately, the average stature of full-grown adults. In making this addition I follow Quetelet: Roberts finds no such increase in young Englishmen of the upper classes, but these Hungarians are mostly peasants, and growth may probably continue in them for some years beyond twenty. The results will be: for the German adult, 5 feet 5½ inches, for the Magyar and Slav, 5 feet 5 inches.

Of very tall men (over 1,790 millimeters) the Germans yield the most, next the Jews, then the Slavs, and the Magyars the fewest. Of very short men (under 1,474 millimeters) the Jews have the fewest, next the Germans, then the Slavs, and the Magyars most.

Dr. Scheiber in Hungary finds the inhabitants of cities taller than those of rural districts, as Quetelet did in Belgium, whereas the rule in England is the reverse. Thus:—

Budapesth	city	1,650,	country	1,633 m.m.
Stuhlweissemburg	do.	1,662	do.	1,640 „
Raab	do.	1,642	do.	1,630 „

Race may have a little to do with these differences, for the Germans and the Jews are probably most numerous in the cities. But it will not sufficiently explain the phenomena, for the citizens of Budapesth, and still more those of Stuhlweissemburg, are taller than they ought to be, even if they all belonged to the tallest (the German) race. Quetelet thought the Belgian peasants continued to grow longer than the citizens; and this is probable, but not proven. The peasants of Hungary live in villages, and are not scattered over the country.

Certain anomalies remain to be noticed, indicating that other factors besides race and aggregation may influence stature. If it were not so, the most Germanic and the most urban counties should yield the highest averages; the most Magyar and rural ones the lowest. But this is not exactly the case. Stuhlweissemburg, which has the tallest men, is one of the most Magyar and least German counties; and the city is comparatively small.

The stature of the Hungarians may appear low when compared with that of the British in general; but it is not so in comparison with that of some other peoples of Western Europe, of the Bretons, for example, or the Ligurian race in the Apennines. Even in England, in large towns and manufacturing districts, at least, if not in limited rural tracts, communities may be found who descend below the average stature of Hungary.

DECEMBER 13TH, 1881.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From Dr. HOFFMAN.—Zuni and the Zunians. By Tilly E. Stevenson.
—— Dr. J. EVANS.—Der Urmensch. By Wenzel Krizek.
From the AUTHOR.—Grottes de la Vallée du Petit-Morin. By Joseph de Baye.
—— L'art Étrusque en Champagne. By Joseph de Baye.
—— Les Grottes à Sculptures de la Vallée du Petit-Morin. By Joseph de Baye.
—— Grottes de Baye. Pointes de Flèches en Silex a tranchant transversal. By M. Joseph de Baye.
—— Notice sur les Grottes préhistoriques de la Marne. By M. Joseph de Baye.
—— Les Amulettes Craniennes à l'age de la pierre polie. By M. Joseph de Baye.
—— The new Infidelity. By Augustus Radcliffe Grote.
—— The Origin of Civilization and the Primitive Condition of Man. By Sir John Lubbock.
—— Observations on Cup-shaped and other Lapidarian Sculptures in the Old World and in America. By Charles Rau.
—— Die Colonisation Afrikas (A) Die Franzosen in Tunis. By Dr. Emil Holub.
—— First Annual Report of the U. S. Geological Survey, 1880. By Clarence King.
From the BERLIN ANTHROPOLOGICAL SOCIETY.— Zeitschrift für Ethnologie, 1881. Heft 5.
From the GERMAN ANTHROPOLOGICAL SOCIETY.— Correspondenz-Blatt, November, 1881.

From the PUBLIC FREE LIBRARIES COMMITTEE.— Twenty-ninth Annual Report to the Council of the City of Manchester, on the working of the Public Free Libraries, 1880–81.

From the R. DANISH ACADEMY OF SCIENCES.—Oversigt over det Kongelige Danske Videnskabernes Selskabs, 1881, No. 2.

FROM THE ACADEMY.—Rozprawy i Sprawozdania z Posiedzeń wydzialu Matematyczno—Przyrodniczego Akademii Umiejętności. T. VIII.

—— Zbiór Wiadomości do Antropologii Krajowéj wydawany staraniem Komisyi Antropologicznéj. Akad: Umiejęt: w Krakowie. T. V.

—— Zabytki Przedhistoryczne ziem Polskich wydawane staraniem Komisyi Archeologicznéj Akad: Umiej: w Krakowie. Seryja 1. Zeszyt. 2.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1514–1516.

—— Transactions and Proceedings of the Royal Society of Victoria, Vol. XVII.

—— Bulletin de la Société des Sciences Naturelles de Neuchatel. T. XII.

—— Proceedings of the Royal Geographical Society, December, 1881.

—— Proceedings of the Society of Biblical Archæology, November, 1880, June, 1881.

—— Proceedings of the Philosophical Society of Glasgow, Vol. XIII, No. 1.

From the CONDUCTOR.—The Scientific Roll, November 1881, No. 5. Conducted by Alex. Ramsay, F.G.S.

From the EDITOR.—Revue Scientifique. T. XXVIII. Nos. 22-24.

—— "Nature," Nos. 630-632.

—— The Bibliographer, No. 1.

—— Matériaux pour l'histoire de l'homme. T. XII, 8e–9e liv.

It was announced that Professor MANTEGAZZA, M. GABRIEL DE MORTILLET, and Professor A. F. POTT had been elected Honorary Members; and Mr. CHARLES HANCOCK an Ordinary Member of the Institute.

The discussion on the Rev. R. H. Codrington's paper was continued by Mr. A. H. Keane and Mr. Hyde Clarke.

The following paper was then read by the author:—

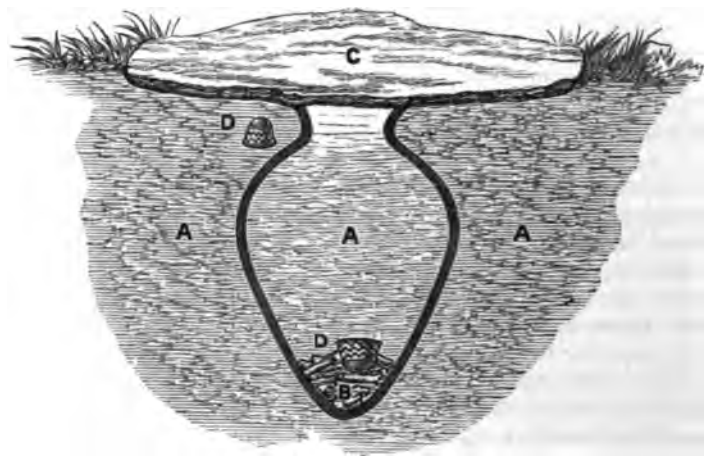
Some Vestiges of GIRL SACRIFICES, JAR BURIAL, *and* CONTRACTED INTERMENTS *in* INDIA *and the* EAST.—By M. J. WALHOUSE, Esq., F.R.A.S., M.A.I.

THE great megalithic forms of interment consisting of kistvaens or sepulchral underground chambers, formed of four huge slabs covered with an immense capstone, and surrounded by a circle of standing stones, which abound in nearly all the provinces of the Madras Presidency, have often been described; but beside these, there is another description of burial, so far as I know, peculiar to the region of the western coast from Malabar to Cape Comorin. This consists of huge mortuary jars or urns, pear-shaped, usually about 5 feet high by 4 feet in girth round the shoulders, and tapering to a point at bottom. They are of coarse, thick red ware, wide-mouthed, generally with a rude incised cross pattern round the neck. These great urns are buried upright in the ground, not in any cist or chamber, and a large flat stone or slab is laid over them, but no circle of stones ever placed around.

My own experience of this form of burial has been chiefly on the western border of Coimbatore, an inland province, bounded on the west by Malabar; I never found it on the eastern side of the province, whose western frontier seems the limit of its extension eastward, and also of the circle-surrounded kistvaen form westward, for that is unknown in Malabar, while both forms are found side by side within the western boundaries of Coimbatore.

These great jars are filled with earth, containing at the bottom a quantity of bones broken small, some bits of iron, and occasionally a small urn also filled with bits of bone; or sometimes with clean sand, red or white, which must have been brought from a distance. In Coimbatore I not unfrequently found several small pots or urns placed mouth-downwards on their shoulders.

It was very difficult to extract one of these immense vessels entire, the soil in Coimbatore being loose and loamy, and the jars buried in it being unprotected by any chamber, the great overlying stone had generally sunk, and crushed or split them all through. In Malabar they are better preserved: the stiff, laterite earth of that district hardens into rock soon after being excavated, and would support any weight. It may be noted that there, though masses of hardened laterite cover the surface, and it is the material commonly used for buildings, walls, &c., the slab stones placed over the jars are always of granite, which



SECTION OF AN INDIAN JAR-BURIAL.

A earth and sand. B splintered bones and pieces of iron. C granite slab. DD small jars.

only crops up here and there, and must often have been brought from a considerable distance. Here, too, small urns found with the greater are occasionally filled with clean sand not occurring near, and it is curious that Colonel Meadows Taylor describes cairns and urns found by him in Northumberland as filled with "a fine red earth, not belonging to the locality, which is peat," and Canon Greenwell considers that the stones of some enormous cists uncovered by him in Yorkshire must have been transported for at least twelve miles.

The same description of burials associated with colossal jars also occurs in the kingdoms of Cochin and Travancore, south of Malabar, in the strip of flat country between the mountains and the Indian Ocean. There the jars are called "Mănchăra" (earth-jars), and are also found buried upright, covered with heavy granite slabs, and containing pieces of bone and iron. The Rev. H. Baker, of the Travancore Mission, informed me that the natives affirmed that they contain the remains of sacrificed virgins. All the petty Rajahs are said to have sacrificed virgins on the boundaries of their estates to protect them from incursions, and to ratify their engagements with neighbouring chiefs; and it is suggested that the pieces of covered iron found in the jars with the bones, may be the remains of sacrificial knives. Sacrifices of young girls are known to have been offered, even up to British occupation, and an existing family preserves in itself a curious vestige. "In old days, at a temple of Bhagarathi or Kali, in Travancore, a young woman pregnant with her first

child, was on stated occasions chosen and brought in front of the shrine. She was then beheaded with one blow, so that her head rolled before the image, on which her blood was then sprinkled. This was done till 1744. In the next year a possession of the goddess came upon a bystander when the sacrifice was about to take place, directing it should be discontinued. The posterity of the woman and child spared on the last occasion are now called Adichamar, and live together in a small community of forty or fifty souls. They receive the offerings made to the shrine, and are exempted from Government taxes. A public sacrifice of a sheep is now annually offered in place of, and in the same manner as, the girls of old." ("The Land of Charity," by the Rev. S. Mateer, of the Travancore Mission.) I have seen descendants of that family, and heard from them the same account.

In other districts I have heard also of instances of girl sacrifice. In the province of Bellari there is an extensive tank on which the irrigation of a considerable tract depends. On the embankment there is a rude stone image of a female at the foot of a great old peepul tree, which is worshipped, and offerings of flowers made at stated times. The story runs that a century or more ago the tank became so full of water that the sluices could not carry it off, and the embankment near them began to crumble and give way. As the villagers beheld this a goddess possessed a woman, who exclaimed, "I am Ganga Bhavâni" (personifying the flood); "if you will feed me with a human sacrifice, I will stop; if not, I will not stop. As the villagers were taking counsel on this, the goddess possessed a girl not yet grown up, named Musalamma, the seventh and youngest child of a farmer, and said to her 'Become thou the sacrifice.' She was accordingly prepared for a sacrifice, adorned as a bride, and holding a lime, she came in procession to the embankment, did homage to her father and the villagers, and said 'Ganga Bhavâni has commanded me. I go to be a sacrifice.' A great gap had now opened in the embankment. She went and stood in it; they poured in earth and stones upon her, and the bank stood firm." It is said that for long after, if people passing by the spot called out to her "Musalamma!" she would reply "Ho!" as the Norse heroes used to speak from their grave-mounds; but now she never answers, though her image is still worshipped. This story is doubtless true, and quite Hindu in the manner in which the deed is glossed over by representing the sacrifice as voluntary, and like instances were probably frequent in the obscure times of old Indian village life, especially if encouraged by equally ruthless observances amongst the superior classes, if the popular stories of maiden sacrifices connected with the great burial-jars

are to be believed. The idea is widely spread and most likely founded on truth, and I once met with another phase of its existence. Wandering in an extensive jungle at the foot of a mountain-range in South Coimbatore, I came upon a solitary conical hill, rising perhaps 300 feet above the jungle in which it stood islanded, like a rock at sea. Its sides for half their height rose in steep slopes covered with thorny bushes, and then ended in a horn or peak of sheer mural precipice all round, except on one side where a narrow rift running up the rocky wall afforded a difficult access to the top. Seeing the ruins of an old fort on the summit, and hearing it had been a stronghold of one of the Polygars, or native barons, famous in the wars of Coote and Stringer Lawrence, I determined to go up, and scrambled with no small toil up the ladder-like rift which permitted only one to ascend at a time. On reaching the top, heaps of big stones and lumps of rock neatly piled together along the brim long years ago, and now overgrown with grass and creepers, showed what manner of reception the holders of the fort had prepared for escaladers of their eyrie. The rift emerged just before the one narrow entrance in the wall, that enclosed the area at top and followed the edge of the precipice all round, and which, though crumbling and ruinous, was of good thick masonry. The interior was of no great extent, the remains of two or three fallen buildings, a natural hollow in the rock rimmed with brickwork for storing water, and a tiny dilapidated shrine, were all the traces left of its former occupiers. It might have held 200 men, and was probably rather a place of refuge for the Polygar in time of need; whence, surrounded by pathless thorny jungle, he could watch any hostile approach, than a permanent fortress.

After looking round, as I was preparing to leave, an attendant drew my attention to a long narrow niche in the thick part of the wall, just within the single entrance to the fort, and informed me that the luck and safety of the stronghold had resided there. I did not comprehend him for some time, till after much circumlocution, for it is unlucky to speak of such matters directly, I learnt that when the fort was completed a young girl had been immured and built up in that niche, as a spell to ensure the impregnability of the fort against all enemies. The niche had been formed in the stone masonry, and filled up in front with brickwork, which had cracked and fallen out almost to the bottom. I looked inside, but could see no relics of the victim. The tradition, however, I found universally believed, and is, I think, true. The niche had just the appearance of having been constructed for the purpose assigned, and for no other use. It was strange to look at the long, narrow, ragged opening—

"Who enters at such grisly door
Shall ne'er, I ween, find exit more,"

and to think that the dreadful monastic punishments of erring nuns and monks in mediæval Europe had had their counterparts in the far East.

I afterwards heard of two or three other forts reputed to have been placed under such grim guardianship when built, but have mislaid their names and localities. Instances are on record of temples and cities in various ages and countries having, at their foundation, been consecrated by this cruel rite. It is enough now to mention Mandalay, the present capital of Burmah, a city drenched in blood throughout its short existence. When begun, in 1858, fifty-two persons of both sexes and various ages, but mostly girls, were buried alive to feed and propitiate the *Nât-zos*, or demons; three being buried under each of the twelve gates, one under each gate-post bearing the name of the entrance, and one at each of the four corners of the city. Propitiation of unseen powers is the idea ruling all these sacrifices, and the more pure and innocent the victims the more acceptable the offering is held to be. Who can reckon up the hosts of young lives that, from the days of Jeptha's daughter and Iphigenia, and doubtless long before, have been pitifully cut short in obedience to this feeling?—a feeling that must have deep roots and meaning, for the highest races did not shrink from it. Indeed, the idea was familiar to classical antiquity. The Roman satirist complained that young people in schools heard nothing of the common things of life, but only of tyrants commanding sons to cut off their fathers' heads, or *oracles ordering three or more virgins to be immolated in time of pestilence*, and the like wild themes.

And again, in the noblest reproduction of Greek drama of our days, Mr. Swinburne has taken for his subject the self-sacrifice, famous and sacred through all Athenian annals, of a noble maiden to rescue her city from the anger of the gods, who required,

"For the land's life her death and maiden blood,
To save a maiden city."—*Erechtheus.*

And it must not be forgotten that atonement by innocent blood is a central dogma in the theology of Christendom.

But detailing these instances has made us lose sight of the sacrifices said to have been connected with the great burial-jars, in Travancore, at least. I did not hear any such tradition when exploring similar remains in Coimbatore, perhaps because I had not then heard the Travancore account, and natives do not

willingly volunteer such information unasked. Moreover, I found more than once several of these huge urn-interments close together, and it seems unlikely there would have been many sacrifices to establish boundaries in one spot; and again, the sacrificial theory would bring these monuments down to comparatively modern times, whereas they have a pre-historic appearance, like the kistvaens or stone circles. However, there is no saying what may have been done in these remote regions of India a thousand years ago. Mr. Baker also informed me, with reference to these great urns or jars, that near Chaughât, in Cochin, a large subterranean vault, with a passage leading to it, excavated in the laterite, had been found filled with them, which, on being handled, all fell to pieces.

Now, when examining Dr. Schliemann's Trojan Collection, I noticed, as doubtless others may have done, a colossal jar of exactly the same form and appearance as the Indian burial-jars, being nearly 6 feet high, and tapering to a point from the shoulders, where it was 4½ feet across. It was marked in the catalogue, "Probably a substitute for a cellar," and in his book, "Troy, and its Remains," Dr. Schliemann, at page 290, gives an illustration of a row of these immense jars found side by side underground, and thinks they were used for storing wine, oil, or grain. Such, indeed, may have been their intention, but the specimen in the Museum reminded me strongly of the great Indian burial-jars, and so did the illustration of the collection underground of the sepulchral vault-full in Cochin. Sir W. Ouseley, in his "Travels in Persia," &c., Vol. I, p. 218, records having met with a somewhat similar instance of great urn-burial in the plain of Busheyr, where urns of a peculiar shape, buried in a peculiar way, abounded about 2 feet below the surface; they were cylindrical, 4 feet long with pointed ends, about 2½ feet in circumference, made of clay, quite plain, and filled with sand and human bones. They were laid horizontally in a straight line, end to end, and said to exist in hundreds. Sir William himself disinterred three or four, and found them full of skulls and bones, which must have been put in piecemeal. He could hear of such urns being found nowhere but at Busheyr, and no such custom ever existed amongst Mussulmans or Pârsis, the present inhabitants.

I have also met with a case of interment in America much resembling the Indian megalithic jar-burials described above. Near the Guatwita Lake, in Missouri, Captain Cochrane opened some ancient graves, and says, "After removing about a foot of earth and turf we came to an amazingly large stone, 12 feet long, 8 wide, and 9 inches thick, of a kind of sandstone. We had to break it into two pieces, it had rested on a shelf cut all round

the grave in the sandstone in which the grave was hollowed. Beneath it we first came to earth, and then to finely variegated sand, *manifestly different to that of the grave*, and at 8 feet we came to fragments of rude earthenware, and some human bones—thighs and arms—but no skulls or teeth."

The earthenware was probably the fragments of a great urn, in which the remains had been put *piece-meal*, as they must have been in the Indian burial-jars; the overlying stone and foreign sand are also features in common with the latter. It is noteworthy that whereas the custom of burial in earthenware vessels exists nowhere now in Continental Asia, where traces of its ancient use are found, Miss Bird, in her excellent and instructive work "Unbeaten Tracks in Japan," states (Vol. I, p. 291) that "at Onagri large earthenware jars are manufactured, which are much used for interment by the wealthy."

A word remains to be said respecting the strange custom of putting the human remains piece-meal into the urns or jars, as from the smallness of the necks must have been the case, a practice that seems so revolting to our notions. There appears no reason why those big urns should not have been made with mouths large enough to admit corpses entire. Some strange instances of the practice have, however, occurred in Europe. In 1875, when digging in the Villa Aldobrandini, at Rome, an ancient terra-cotta wine-amphora was discovered, containing the bones of a human skeleton of mature age: as the orifice of the jar was but 3 inches in diameter the parts of the body and largest bones must have been cut and forced in. This, however, probably had some connection with sorcery or the superstition of the early centuries, but a still stranger discovery is related by Count Caylus as having been made about the middle of the last century, of the same description but on a prodigious scale. A long subterranean vault or corridor was found under the walls of the Pincio, facing the Villa Borghese, containing some thousand amphoræ fixed in the earth, and each crammed with human bones, mixed with those of horses and oxen, and some small waxen objects. No explanation was ever given of this extraordinary find.

Almost as strange as these piece-meal interments, and in some sort connected with them, if arising from the idea of packing within the smallest compass, is the custom of "contracted burials," with the legs bent closely and the knees brought up to the chin. Archæologists know that this is a common form in prehistoric graves in England and Europe. Dr. Schliemann was much exercised at finding skeletons, presumably of king's and heroes, compressed into "extremely narrow graves" at Mycenæ, and was inclined to surmise it must have been done by

way of insult by some arrogant conqueror.[1] Bodies, however, have been frequently found elsewhere in Europe, in large prehistoric graves, placed on one side, or huddled up in a corner in sitting postures, certainly through no lack of space, and without any conceivable intention of insult. Canon Greenwell often found skeletons in roomy barrows compressed into "the attitude of one who curls himself up to sleep," and thinks that may have been the real meaning of the posture. In America, both North and South, the custom prevailed widely. We read of cists upon the Merrimack river, in Missouri, formed of 6 pieces of flat stone, and only from 25 to 50 inches long, placed in small hillocks, and containing contracted skeletons. In Tennessee and the West similar graves are found, in which bodies had been placed with the legs drawn up together close to the body. Again, at Atarniki, on the bank of the Orinoco, 600 skeletons were found, well preserved, and regularly arranged in baskets; they had all been doubled up and bent together; and at Arica, in an extensive cemetery on a hill-side, bodies are found in holes not more than 3 feet deep, placed in a squatting posture, with the knees drawn up and the hands applied to the side of the head. The compressed and squatting modes of placing the dead, so common in ancient catacombs and cemeteries in Peru and Chili, have been described by Consul Hutchinson and others in the pages of this Journal.

All prehistoric practices survive in some part or other of the world, and Miss Bird in her previously quoted book on Japan, has a curious passage bearing on this subject. After relating that large earthenware jars (she does not mention the size of the necks) are used for interment by the wealthy, she goes on to say that the poorer classes use "two square boxes, one within the other, and the body is placed in the inner box in the usual squatting position. In Japan, after death a body is always laid at length for some hours, with the head to the north, and it is impossible to understand how, when stiffened many hours after death, a body can be pressed into the limited space afforded by even the outermost of the boxes. It has been said that the rigidity of a corpse is overcome by the use of a powder called *dosia*, but this idea is exploded, and the process remains incomprehensible." I can make no suggestion, but will proceed to add finally that in India the anti-Brâhmanical sect known as Jangams or Vîra-Saivas, a sort of Hindu Puritans, always bury their dead in a sitting attitude, and that contracted burials of the complete prehistoric type are practised to day by the Abors,

[1] The doctor might have remembered that Herodotus (iv, 190) expressly reports, that in his time, "all the Libyan nomads bury their dead sitting, *as the Greeks do.*"

on the Dibong river, in the valley of the Brahmaputra, on the north-east frontier of India. Colonel Dalton, in his splendid work on the "Ethnology of Bengal," reports of them, "The rugged rocky soil on which their villages are built has probably originated a unique custom of sepulture, by which very small graves are required. The dead are trussed up so that the chin rests on the knees, and are placed in the small chambers prepared for them in a sitting posture." The custom is not so unique as the Colonel imagined; antiquaries may consider whether the cause assigned by him could have had any weight in determining the contracted posture and small cists of prehistoric interments in Europe. Possibly the Abors may have some other reason or motive, traditional or superstitious, which, if ascertained, might throw light on the meaning of this strange, widespread, and very ancient custom. Perhaps Canon Greenwell's suggestion points to the truth. At the present day nearly all savage people, when resting, sit in a doubled-up or squatting posture, and this may have been chosen for burial as symbolical of repose.

The following paper was then read by the author:—

On the ORIGIN *and* PRIMITIVE HOME *of the* SEMITES.

By G. BERTIN, Esq., M.A.I.

THIS is a subject that has been frequently discussed, and in some cases by eminent scholars; if I dare to take it up after them, it is because the conclusions which I bring forward are those which I have arrived at by an independent course of study, having no theory in view; indeed I can say that I was led to these conclusions by the facts themselves, and even when I was not working at the subject.

I could have extended this paper considerably, but I have limited it as far as possible to what is strictly necessary. If required, however, I could bring forward a much greater body of facts and additional proofs. I have also omitted many references which might have necessitated numerous critical notes.

I do not wish to discuss the question of the one or the many centres whence sprang the whole human race, but I wish to limit myself to the question of the primitive home of the Semites. By "primitive home," I understand the country where a people acquired the physical, linguistical, and psychological characteristics which give individuality to a race.

As for the Semites, moreover, few philologists would deny

that their languages, which are the principal test adopted to fix the area of the race, are undoubtedly of secondary development. From whatever source the Semites sprang, they acquired such a marked personality, that they really constituted a new race, with a turn of mind of its own, and with such strong characteristics, that its influence on other races is always easily detected.

In historical times we have an example of such a formation of a race in the origin of the Latin family. But with the Semites the individuality was even more strongly marked, —so strongly, indeed, that assimilation with other races was always, and is still, if not impossible, at least difficult.

At the present day the Semites are represented only by the Arabs; but as far as we can gather from the Assyrian and Egyptian monuments, the Arabs represent the primitive type rather faithfully. They are of medium stature, thin, but muscular, with long spherical heads; the forehead is low and flat, the nose aquiline, the eyes dark, bright, and covered; the hair black and smooth.

These characteristics, which are pretty much those of the Assyrians of the Second Empire, and those represented on the Egyptian monuments, have remained in their purity only in Arabia. The Semites have, in other quarters, become more or less mixed with alien races, Turanian and Aryan, and their type has been accordingly modified.

The linguistic characteristics are much more strongly marked, so much so that it has been said that all the Semitic tongues are merely dialects of one and the same language. The most important philological point is the *triliterism*, that is the peculiar turn of mind which can only conceive a word as being formed of three letters. It is the result of a kind of harmony of meter; when the Semites borrowed a foreign word, they always gave it a triliteral form by doubling one of its letters, or adding an aspirate. We have a great many examples in Assyrian with words borrowed from Akkadian, and in Arabic with words borrowed from Turkish. In the grammar the peculiarities are also striking; the verb, rich in voices, is very poor in tenses, which have always a vagueness as regards time; and even under the influence of Aryan or Turanian tongues, there never has been developed a strict system. There are only two genders, but the feminine is often used as a kind of neuter; the persons in the verb, and the possessive, are expressed by suffixes. These are the characteristics common to all the Semitic tongues.

The Semites may be divided into three branches: 1st, the Arabian; 2nd, the Syrian; and 3rd, the Assyrian.

The Arabs have now nearly absorbed all the other Semitic populations. Of ancient monuments, we have only the Sabæan inscriptions of tribes now extinct. From the Arabs sprang the Ethiopians or Geez, who passed into Abyssinia, and mixed with the natives; we have now their various spoken dialects, such as Tigré, Amharic, &c.

The Syrians or Aramæans were first confined within Syria proper, but extended later all over the Semitic area north of Arabia, till they were absorbed by the Arab invaders. In this class I include the Hebrew and Phœnician speaking tribes, as well as the populations speaking Syriac, and other Aramæan dialects. All those populations, who produced a most brilliant literature, have adopted a more or less corrupted Arabic. We now find only few scattered tribes speaking a decayed Aramæan.

The Assyrians, under which term it is customary to include all the populations of the ancient empires of Mesopotamia, have, as far as their language goes, entirely disappeared, but their tongue and their records are found in the numerous tablets and bricks excavated in the seats of their once powerful empires.

Though it would seem that I have, in this classification, followed exclusively the philologists, I believe that the three great divisions answer to three ethnological groups, each having a physiognomy of its own, and each having played a different part in the history of the race.

At the outset I must notice what we can gather from classical writers. Unfortunately the ancients knew nothing of ethnology, and never divided the human race, save into two classes, Greeks and Barbarians, or Romans and Barbarians, according to the nationality of the writer; and when the Greeks had arrived at the literary period, the Persians were masters of Western Asia, and the Babylonian and Assyrian Empires were but mythical to them. When the Romans took possession of Western Asia, they had to deal only with Greeks, and never troubled themselves much about the natives of their new provinces. We can, therefore, get only a few particulars from the classical authors; which are, no doubt, of great help, but only as far as they have preserved the echoes of old legends, without meaning for those who preserved them, though of the greatest value to modern science.

The studies of modern scholars, with the help of Hebrew and Arabic, made great progress, but the elements of knowledge were, until recent years, too limited to enable them to perceive the whole truth. It is only in this century that the discoveries and deciphering of the cuneiform and hieroglyphic monuments permit us, with the severe criticism of the modern school, to take up the subject with hope of success.

Those modern philologists, who have discussed the subject, have arrived at very different and often opposed conclusions. This cannot surprise those who realise how misleading is lexicography, if not checked by other data.

Scholars have lately taken philology as a guide. Dr. Kremer and Dr. Hommel compare the names of plants and animals, and Signor Guidi goes further still in the way of comparative lexicography. They admit as an axiom that the plants, animals, or objects known to the primitive Semites before their dispersion must have the same names in all the various branches of the family.

I may remark that a slight glance at the Aryan tongues might have demonstrated to them how deceptive is the process they have employed. We are, indeed, far from finding in the Aryan family that accord which we should expect, according to their axiom; thus we have in our European tongues, to give only a single example,—*dog, hund, chien*, &c. And, reversing the process, if we take a root we see it used for very different animals, for example,—*deer, thier*, θηρ, and *fera* convey to the minds very different ideas. Nevertheless, it is on this fragile base that scholars build up the theory of the Babylonian primitive Semitic home.

Even accepting his starting point, I do not see that Dr. Hommel has proved anything; he says that the word *dabu* in Assyrian, דוב (*dôb*) in Hebrew, &c., for *bear*, shows that this animal was known to the primitive Semites before the dispersion; but this root דוב is variously employed even in Hebrew, and the meaning of the Assyrian *dabu* is not at all certain; besides the Arabs to this day used ديب (*dîb*) for "wolf;" the conclusion drawn from the meaning of this root is therefore vitiated. Dr. Hommel also says that if the home of the Semites had been in Arabia they would have been acquainted with the ostrich, for which there is no common name in all the dialects; but he forgets that the ostrich was wild in the very country where he places the Semitic home, Mesopotamia, as shown by Xenophon. It would be easy to demonstrate that the names for *ox* or *bull*, the names for *palm tree*, &c., are as deceptive a guide as that for *bear*.

But I will say more: a careful study of the names of animals and plants will show that the very animals and plants with which a people is most acquainted, have a great number of names; and for this simple reason, that being always under their eyes, many qualificatives and nicknames for them often grow into common names. We have many examples in the Semitic tongues; the bull has several names in Hebrew, in Arabic, &c., as might be expected among pastoral nations. The

ostrich mentioned by Dr. Hommel is called in Hebrew יַעֵן (*Yaen*) "the glutton" רְנָנִים (*renanim*) in plur. "Those which make a stridulous noise," תַּחְמָס (*thakhmos*) "the unclean." This is also evident in the Aryan tongues. It seems, on the contrary, that only plants and animals of foreign extraction have a common name; thus we have in our modern tongues the camel, the tobacco plant, the maize, &c.

Professor Guidi is not more successful when, by employing the same philological process, he argues from the common root for "stream," "sea," "hill," that the first home of the race must have been in Mesopotamia, where there are streams, lakes and hills. Here the same objections can be raised as for the names of animals.

After admitting as a fact this not at all certain hypothesis of Babylonia as the first Semitic home, the three learned scholars, strange to say, turn back to the old theory of a Central Asian origin and describe the road which the Semites probably took before settling in Mesopotamia. This is another example which shows how difficult it is to shake off long accepted ideas.

Professor Sayce and Professor Schrader, with the same help of philology, come to quite different conclusions, and both look upon Arabia as the first home of the Semites. The former says that "the Semitic traditions all point to Arabia as the original home of the race." But, on the contrary, the Jewish, and the Assyrian legends point in an opposite direction. Arabian traditions, if there are any, are quite modern, and do not date back before Islamism, when the Mahometans adopted the Jewish traditions. Professor Schrader, who remarks that the Arabic is the purest of the Semitic dialects, analyses the Arabian names preserved in Assyrian and Sabæan inscriptions, and acknowledges that in many are found names of gods, borrowed from the Assyrians. This is very likely, and therefore detracts much from the value of his theory. Unfortunately, he does not attempt to explain the varied and different characteristics which appear in the numerous Semitic tribes.

The only satisfactory hypothesis will be one by which we can get a clear and sure explanation of all the characteristics, traditions, and philological variations found in the different branches of the Semitic family.

A glance at a map of Western Asia of any epoch will show to the most superficial observer that the extreme eastern end of the Semitic area is at a short distance from the Tigris. The campaigns of the Assyrian kings prove that at no time were there on the eastern frontiers any populations akin to the Semites. Elam, Media, Persia, Armenia were always inhabited by nations of

other races having no affinity, philological or physical, with the Semitic populations of Mesopotamia. If, therefore, we took philology for our only guide, we ought to look to the west of the Tigris for the first home of the Semites.

The traditions contained in the Bible seem to point, it is true, to the east, but they are supported by the evidence neither of history, nor of ethnology, nor of philology; and it is not likely that the Semites would have come from Central Asia and have left behind no population akin to them in language. There is besides strong evidence to show that those traditions of an Asiatic home are not Semitic, but have been borrowed from another race.

The tablets of the library of Assurbanipal brought from Niniveh prove beyond doubt that the legends of the Central Asian origin of the Semites are not Semitic, but Akkadian, *i.e.*, Turanian, and were written on clay tablets long before the time of Moses. The two people who adopted them, the Phœnicians and the Israelites, acknowledge having come from Babylonia; we can therefore admit without rashness that they brought those legends with them from the common stock in Babylonia. We may also notice that those legends have not penetrated into Arabia, where traditions neither of the flood nor of the patriarchal history existed before Mohammed, and it would seem strange that if they had ever been known there, all remembrance of them should have been lost.

Before going further, I must say that I accept entirely the conclusions of the modern scholars who demonstrate a common origin of the Semitic and Hamitic tongues. But as those conclusions have been contested, I must notice the ground on which the theory rests.

The affinity of the two grammars had been noticed long ago by Gesenius and others. All the Semitic pronouns and suffixes can be traced back to the Egyptian;[1] as this is acknowledged by the opponents of a common origin, I need not insist on it. The order of the Semitic sentence is the same as in Egyptian, and it is important to notice especially that the identity exists in the Egyptian of the earliest dynasties.

The common origin is not less strikingly demonstrated by vocabularies.

As the adversaries of this theory object, however, to this evidence, contending that the Egyptian words quoted are of a later Semitic introduction, I have been careful to select for comparison only those Egyptian words which are found on the earliest inscriptions when Egyptian had not yet been subject to

[1] *See* 'Formation of the Semitic tenses,' in the "Transactions of the Royal Asiatic Society," vol. xiv, p. 105.

any Semitic encroachment. I have been through long lists of words, but will limit the quotation to a few striking examples.

Sar (Chief) 6th d. *Sarru* in Ass. (king). שַׂר (leader, prince).

Hes (to escape), 4th d. *Ass. hāsu* (to hasten). חוּשׁ حيس (to escape).

χer (to beat, to vanquish), 4th d. Ass. *garū*, גרה (to fight, to drag, to devastate).

Erpā or *repā* (prince, noble) 4th d. Ass. *rubū* (noble), this root in all the Semitic dialects meant primitively "great," and has been localized also to express the number "four."

The Egyptian word for *tongue* is curious; it is *nes*, which became in Coptic ⲗⲁⲥ, and we have with the same meaning *lis-an* in all the Semitic dialects, *an* being a suffix formative of nouns.

The old root *ab* or *ap* meant originally in Egyptian "mouth," and has retained this meaning in the Falasha *ab*. We have in Egyptian *ap* (to speak, to proclaim, to order, to judge) and it had also the meaning of "father" as "nourisher," retained more clearly in *apt* (to bring up, to suckle) from which word was derived at the times of the last dynasties *apt* with the meaning of "suckling," *i.e.* "child;" there is also in Egyptian *nupa* (udder of cow). In the Semitic tongues we have a parallel list of words: *atu* (father), *ap* (face), *awa* (to breathe) *ibb* (to exclaim). With *n* prefixed (*niphal*) we have *nabu* (to proclaim); *nabiu* (prophet) as in Egyptian *nebiu* (the supporter, *i.e.*, the one who causes to be nourished).

I might multiply examples, but it would extend this paper too much.[1]

The study of Egyptian grammar often gives the key to the Semitic formation. The pronouns are universally recognised to be the same, but we must remember that no doubt the proto-Semites parted from their Hamitic brothers when the grammar was in process of formation. In the earliest Egyptian inscriptions we still see the pronominal roots with a remarkable flexibility, and the pronouns even appear in some cases to be common. We have, for example, the  *at* or  *t* with the meaning of *generatrix*, as shown by the group , it has formed the feminine article *t*, often merely used as a feminine determinative; we find it also used as an undetermined pronoun  *tu* (one, somebody; the French *on*) and forms a kind of passive or reflective voice. The primitive meaning explains the

[1] For the numerals I have, I think, proved their affinities in a paper read before the Society of Biblical Archæology.

hitherto unexplained word  *atew* or  *tew*, read also *atef* and *tef* (father), which became in Coptic ⲓⲱⲧ: the Egyptian  *w* is a personal pronoun masculine, in ; we have therefore *generator-he, i.e.*, father. The Copts, who had no doubt retained the meaning of the primitive formation have reversed the terms and said *he-generator*. The root appears with the same uses in the Semitic tongues, it forms the *t* conjugation which has a reflective or passive sense; we have the demonstrative pronoun אתי.

The Shaphel, which exists in Assyrian, Syriac, Arabic, &c., is also explained by the Egyptian, where the formation of this voice is still clearer. The suffix  *su* of the third person localised in the feminine in Egyptian is often determined by the  *t*, probably to leave no doubt on the mind of the reader; in Assyrian the suffix is retained for both genders, m. *su*, f. *si*. We have the word *su* (man) in Egyptian (the Hebrew איש), and prefixing the word the factitive or causative voice, Shaphel.

In Egyptian, as in the Semitic tongues, we have the genitive of position, and in the former there are many traces of broken plurals. Besides that Mr. Le Page Renouf has shown that the Egyptian plural often conveys to the mind not an idea of plurality but one of collectiveness, which is the case with the broken plurals.

I think I shall be able to show why, in the first Semitic group (Arabic), the syntax and most of the grammar remained intact, why, in the second (Syrian), the grammar and syntax have been disturbed, and why, in the third (Assyrian), both have been partly lost.

As I have said before, the object of this paper is not to look for the primitive home of mankind, but only of the Semites. As I accept, however, the common origin of the Semites and Hamites, I must notice that no Egyptian tradition, either on the monuments or on papyri, or preserved by classic writers, ever points to Asia as their first country; on the contrary, as Dr. Birch has noticed, all traditions point to the south of the Nile valley. Modern philologists, as Mariette, Dr. Lepsius, Dr. Latham, &c., seem to have accepted this view. If the race had an Asian origin, the Egyptian, as the oldest and earliest civilised people of the family, would have retained some recollection of it.

The only serious objection against the common origin of the Egyptians and the Semites is their physical difference. But we must notice that very few have as yet denied the unity of the Aryan race, though we find, from the Ganges to the Western

coasts of Europe, Aryans of all shades of colour of skin and hair, and of all physical types. The influences of climate, food, life and intermixture with other races are too powerful in their effects to allow of our safely taking physical type for our only guide in ethnological researches.

We have evidence of this in Egypt itself. As Champollion has noticed, the Copts, who have preserved the last remnants of the old Egyptian tongue, are far from representing the Egyptian type illustrated by the monuments and the mummies; this type has, on the contrary, been retained by the Arabic-speaking Fellahs. The Egyptians lived for many centuries on the banks of the Nile before they wrote their first records. It is in this long period, when they were constantly struggling with nature to master the annual flood of the fertilizing river, and with the hostile tribes of the desert and of Nubia, that the Egyptians acquired an individuality so strongly marked that they constituted a race. If, however, we compare an old Egyptian of the first dynasties with a Semite, an Arab, for example, we can account for the difference in type by intermarriage with the negroes. Mr. Poole said long ago that the Egyptian was an intermediate type between the Semite and the negro. We must, besides, remember that probably the Proto-semites severed themselves from the Hamites before the time when the Egyptians had acquired their marked personality, and that the Semites, after having passed into Asia, came into contact with other races whose influence contributed to exaggerate the difference of the two branches of the same family.

Among the races which the Semites encountered, the one which exercised the most powerful influence is the Turanian, represented in the Assyrian and Babylonian records by the Akkadians. Those people belonged to the ethnological group called Ougro-Altaic. Their grammar, their syntax, in fact all their conceptions, were entirely different and sometimes opposed to those of the Semites. As we know now from the Cuneiform records, those Akkadians were the first civilisers of Mesopotamia: all the poems and legends, which were borrowed by the Babylonians and afterwards by the Jews, were first written in Akkadian. The Turanians seem once to have covered all Western Asia, and their influence was everywhere strongly felt. The tradition of this powerful Turanian reign has been handed down by the classical writers who call the Turanians by the very loose term of Scythians.

It now seems clear to me that the proto-Semites once dwelt with their Hamitic brothers in Africa, passed in prehistoric time into Asia through the Isthmus of Suez, and settled first in

Arabia Petræa. There living a pastoral life, they acquired their personal characteristics and developed their half-shaped grammar. For them the verb was a noun, as in Egyptian; by the same process they slowly worked out an elaborate system of conjugations, and voices by means of prefixed letters, so-called "serviles;" and by means of suffixed letters, they arrived, as M. Ancessi has proved, at triliterality. This triliterism has been carried to such an extent that the biliteral roots (the so-called concave verbs) are forced into the same symmetrical system, and in many cases the biliteral roots have been made triliteral by doubling one of the radicals. Another process employed has been to treat two distinct roots as one; and in the fusion, one is reduced to a single letter. The tenses of the verb were still vague, as is shown by the fact that what is the form of the present in one dialect is the past in the other; but the suffixes of persons and the prefixes of voices were still clear to the mind of the Semites of that period, as is shown by the fact that they are used for different purposes by different tribes.

The numbers in the nouns were the same as in Egyptian, and the plural a mere collectiveness; hence the broken plural, which in fact is not a plural but a collective word, as shown by the Arabic, where these plurals govern the verb in the singular. We have some examples of this conception in Hebrew and Syriac. For the same reason the collectiveness of the plural implies often the feminine, as is the case in Arabic.

In their dispersion the three great branches of the Semitic family carried these elements with them and were not likely to modify them save under very strong foreign pressure. Therefore we must expect to find the greatest modifications in those dialects which have been most exposed to foreign influence.

The first branch, the Arabs, found in Arabia neither Turanian nor Aryan but only perhaps Hamitic tribes in certain districts; their grammar then could only have been influenced in the Hamitic sense, and for this reason the Arabic seems to be, if not the purest Semitic dialect, at least the one where the principles of synthesis have been carried to their logical ends. There are a few evidences of Turanian influence, but that influence is very feeble, as is the case when it is not by conquest but by intercourse.

The Hebrew and Aramæan, having felt the foreign influence more strongly and having perhaps remained less connected with the common source of the family, have suffered to a much greater extent. The verb, no doubt, is still the same, but it has lost a great deal of its flexibility; the primitive roots have no longer the same life. The conception of the plural is in great part lost.

The Assyrians and the Babylonians, being by their position and their civilisation under the direct influence of the Turanians, have, as rarely happens, reversed the order of their sentences, putting the verb at the end, as in Akkadian. They have entirely lost the tense formed with suffixes. The broken plurals have ceased to be regularly formed, and those found are treated as independent words. Even triliterality has not the same rigidity as in the other dialects.

For the same reasons of geographical position and foreign intercourse, the Akkadian legends, accepted as a whole by the Babylonians and Assyrians, have been also adopted with few changes by the Hebrews, Phœnicians, and Aramæan tribes, but have not penetrated among the Arabs.

Our theory is also confirmed by the physical differences of the three groups. If we examine the Babylonian and Assyrian monuments we see that, when as yet the Turanian element had not disappeared, the figures which are represented bear a strong stamp of Turanism, and prove the presence of Turanian blood in the Mesopotamian Semites; while the nearer we come down towards the pure Semitic period of the second Assyrian empire, the more are the figures Semiticised.

As Professor Sayce and Professor Schrader have noticed, the Arabs have kept the purest Semitic type. The travels of Palgrave give us the explanation of this fact. If we glance at his map, we see that Central Arabia is surrounded by seas of sand, and affords an inaccessible refuge to its tribes. It has, in fact, been a kind of island in the desert, where the Arabs have held out against all invaders, as the Caucasian and the Basque tribes did in their mountains. As Palgrave has noticed, the population of Central Arabia speak the Coran Arabic, a fact which shows how, in keeping aloof from all foreign influence in their refuge, they have developed to the uttermost the principles of their grammar.

Discussion.

Mr. J. Offord remarked that, although he had listened with great pleasure to Mr. Bertin's ably put forth theory of the African origin of the Semites, yet he felt it had so little foundation in fact that he should like to give a few reasons for doubting its accuracy. First, he thought that to assert the Egyptians were Semites was a statement for which there was no warranty whatever, and to imagine they descended the Nile from Ethiopia and entered Asia by the Isthmus of Suez was to ignore all evidence we have upon the subject. If there is one thing in which eminent Egyptologists, who differ widely on other matters, are agreed, it is that the Egyptians did *not* descend from Ethiopia bringing their civilisation with them. This guess had been hazarded by classic authors long

ago, especially Diodorus (*see* "Maspero, Hist. Anc." 13). Brugsch shows conclusively that the monuments commence chronologically at the apex of the delta, "and the more you ascend the Nile the more does the stamp of antiquity vanish" and that they always exhibit *only* negro races to the south of Egypt. The only ground Mr. Bertin seems to have for his theory of the common origin of the Semites and Egyptians is the presence of Semitic words in Egyptian. But in order for this argument to be valid, he must first prove that these Semitic words formed part of the original stock of the Egyptian tongue, and this is impossible, for we have the evidence of Egypt herself against it, clearly showing it was not until the "middle empire" that this cross fertilisation of words took place, and they were ingrafted to (instead of forming a part of) the stock of words.

One (the speaker believed of the Sallier) papyri is a letter of advice from an Egyptian scribe to a young man to abandon his use of Semitic words and the habit of giving to Egyptian words a Semitic form; for it appears this was a fashionable habit with "young Egypt" thus showing conclusively that such words were considered by a conservative Egyptian to be utterly alien to his mother tongue. Mr. Bertin's theory is contradicted in another way. The researches of Dr. Hommel, Guidi and Lenormant ("*Sur l'antiquité de l'âne et du cheval*") show that the Semites were from the first acquainted with the horse and camel and probably the sheep and common hen, but we know that the Egyptians were not acquainted with these until after the time of the Hyksos. This, had Egypt been the route of the Semites, could not be the case. Professor Owen ("Journ. Anthrop. Inst.," Vol. IV) shows decisively that a Semitic origin of the Egyptians rests on no basis whatever; that their features had no Semite elements till after the Hyksos invasion and consequent mingling of types; that the original seats of the empire were not fixed near Ethiopia, nor east of the delta, where they would have been if they were Semites coming either from Ethiopia (with Mr. Bertin) or from Asia (Maspero) but in the centre of the country at Abydos, Memphis and Thebes. Mr. Bertin ably indicated Semite physical characteristics, thus refuting himself, for in the most ancient portrait statues at Boolak these peculiarities are conspicuous by their *absence*. And it is not until after the Shepherd kings, in the Ramessid period, that a type of Semitic features appears. Professor Owen says—"Facts are adverse either to an Asiatic immigration by the isthmus or an Ethiopic one, and at least in reference to a possible antecedent immigration they leave the equal searcher after truth in an expectant attitude and beget a determination to persevere in researches indispensable for the fulfilment of his quest."

That any people would leave the fertile Nile valley to settle in the adjacent parts of Asia seems most improbable and directly contrary to subsequent history, for we know the great trouble of the Egyptians was the persistence with which Semitic tribes attempted to obtain a home in the valley or the delta.

With regard to Phœnicians possessing Semitic myths, that may be accounted for by their coming into contact with Semites in their journey from the Persian Gulf to the Mediterranean, for it was the almost universal testimony of antiquity that they originally came thence. Mr. Bertin decisively pronounced in favour of the Turanian affinities of Akkadian, but we must remember this is far from being proved, and is now being assailed more violently than before. He says Professor Delitch has recently argued in favour of the old theory of Eden being in Mesopotamia; but with regard to this uncertain subject M. Lenormant has lately advocated its being somewhere near the Hindoo Koosh ("Contemp. Rev.")

With regard to Dr. Hommel, the fact of a similar name for an animal being common to various dialects of a family of speech does not always prove it was known before the divergence of these dialects from the primitive form; because it might be owing to each one of the dialects having adopted its title in its native habitat, if the animal had been introduced from a foreign country. This is notably the case in the name for ape in King's and in Greek authors, both having adopted its name from Sanscrit (*see* Smiths' "Bible Dictionary," 1, 77.)

Mr. T. G. PINCHES observed that he did not think it could be said with certainty that Akkadian was a Turanian tongue, as our knowledge of it was as yet very incomplete. He did not deny, however, that there were many analogies. As the knowledge of the original home of a people might be of value in deciding the true nature and relationship of their language, it would, perhaps, be of interest to mention a discovery that he had made lately, bearing upon the origin of the Akkadians. In two little report tablets found last year by Mr. Rassam, at Konyunjik, there occurs several times the name of a people called the *Kusâa*, which Mr. Pinches at once connected with the name Kusua, found on a little tablet from Cappadocia, supposing it to be the old name of that country. This conjecture was confirmed by the fact that in a list, published in the "Cuneiform Inscriptions of Western Asia" (Vol. ii, Pl. 53, No. 1), giving the names of the countries in the neighbourhood of the Taurus range of mountains, the word Kûsu occurs. Now as the name of the Ethiopian Cush was spelled in the same way in Assyrian, it was, of course, regarded by most people as the same place. The Kusâa, however, were certainly a northern people, and their name was quite regularly derived from Kûsu by the change of the *u* ending into *âa*. The identity of the Kusâa with the old native name of the country Kusua and the Assyrian name Kûsu might therefore be regarded as certain. Light was thus shed on two important passages in the Book of Genesis, the first of which occurs in chap. ii, ver. 3, where the river Gihon, there said to encompass "the whole land of Cush," was mentioned; and the other in chap. x, ver. 8, where it was recorded that Cush begat Nimrod. The identification of the name Cush in these two passages with Cappadocia instead of Ethiopia cleared away many difficulties in the Biblical narrative. Not only was the question as to the position of

Paradise affected thereby, but we got also the fact that Cush, the father of Nimrod, a chief of what we now call the Akkadian race, lived in or near Cappadocia.[1]

A most interesting thing also was the double name-system revealed by the Cuneiform inscriptions: the Muṣri of the land to the north of Assyria, the Muṣur in Egypt, the Cush Cappadocia and the Cush Ethiopia, the Makan and Meluḫḫa in Babylonia, and the districts bearing the same names in Egypt. All these showed a connection in the minds of the people of the ancient world, between Egypt on one hand, and Mesopotamia and Asia Minor on the other, the weight of which, in considering the important paper which Mr. Bertin had just read, it was needless to point out.

Mr. Bertin said that he wished to add a few words in answer to the criticisms of Mr. Offord, though every one of them had been met and refuted in the course of the paper. Firstly, the author never said that the Egyptians were Semites, nor that the Semites were African, but only that Egyptians and Semites are "descended" from the same ancestors, and that the proto-Semites parted from their brethren when in Egypt. He would not follow Mr. Offord into the question of the origin of the Egyptians (which was outside the subject), but he would mention that Egyptologists are far from agreeing (as Mr. Offord wrongly supposes) about it. To cite only one example; one of our best Egyptologists and, what is rare among them, an eminent archæologist also, Dr. S. Birch, said (First Congress of Orientalists, Paris), that *no evidence whatever* supported the hypothesis of the emigration of the Egyptians from Asia. Moreover, all the classic traditions and the national Egyptian mythology point to Ethiopia as their first home, *the only* tradition to the contrary being the Mosaic statement. In his philological comparison, he had been careful to take Egyptian words from inscriptions of the fourth and sixth dynasties—that is, more than ten centuries before the Hyksos,—and the papyrus quoted by Mr. Offord is of a much later date. Supposing that the Egyptian civilisation began at the Delta (which the author denied) it would not prove that the Egyptians came from there. The quotation of Professor Owen, cited by Mr. Offord, proves that the learned naturalist thought he could not decide the question on account of the scant data then at his disposal.

He (Mr. Bertin) thought he had shown in his paper how inadequate are proofs obtained in comparing the names of animals, for deciding the origin of a nation. The horse was *not* known to the Semites at first, and was looked upon by the Babylonians as a foreign animal. If Mr. Offord would take the trouble to compare

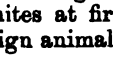
[1] Another confirmation of this is to be found in the characters used for the word "horse" (in Akkadian  *anše-kur-ra*). This word has hitherto been translated "animal of the east," but the true rendering is undoubtedly "animal () of the country ()" showing that the Akkadians regarded their own land as the home of the horse, an honour given by the classical writers to Cappadocia.

Fig. 1.

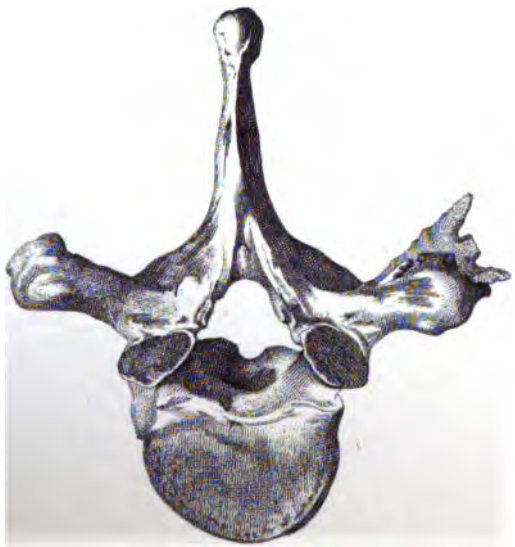


Fig. 2



Journ. Anthropol. Inst., Vol. XI, Pl. XXV.

J.P. & W.R. Emslie, lith.

HUMAN VERTEBRA WITH FLINT ARROW-HEAD, AND POTTERY
FROM TUMULUS NEAR COPIAPÓ, CHILE.

the most ancient statues exhibited in the Boolak Museum, he would see that their type is much nearer to the Semitic features, than to those of later dynasties, and he had satisfactorily (he thought) explained in his paper the reason of the difference of type of the Semites and Egyptians.

We do not know the causes which induced or forced the proto-Semites to leave the Nile valley, but the exodus of the Jews gives, in historical times, a parallel and certain fact: he therefore saw no improbability in the first emigration.

He pronounced in favour of the Turanism, not of the Akkadian tongue, but of the Akkadians. It would take too long, however, to treat now of this question.

As for the presumed site of the Garden of Eden, he had purposely withheld from speaking of it in his paper, as he looked upon the legend as entirely mythical.

Notes on some EXCAVATIONS *made in* TUMULI *near* COPIAPÓ, CHILI, *in June*, 1880. By J. H. MADGE, Esq.

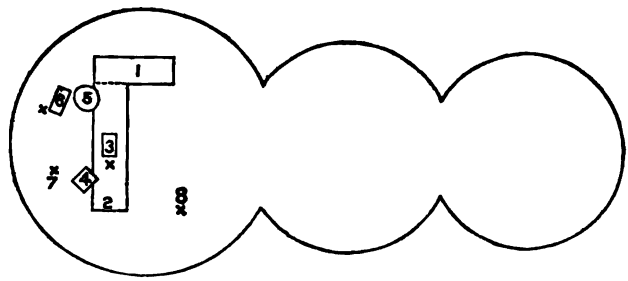
[WITH PLATE XXXV*.]

(A paper read before the Institute on June 14th, 1881.)

HEARING from my friends that pieces of old Indian pottery had on more than one occasion been washed out from the soil after heavy showers of rain, I obtained permission from Don Francisco Cortes, a large landed proprietor, to dig on any part of his estate, and a cordial invitation was given to stay at his house while the operations were going on. Further, Don Francisco pointed out a spot from whence had been obtained, at different times, some dozen or more pieces of fine pottery, in a very perfect state. These he described as "cups," "saucers," &c., with patterns painted on them. Unfortunately so little interest was then taken in the matter, that all these specimens were given away piecemeal, or had somehow disappeared. Don Francisco now so far interested himself as to hunt up all the places where any remains had been found. The principal one had been levelled for cultivation and all traces were thus destroyed; we saw nothing but a large number of broken fragments scattered over the surface of a large field. Next we visited a rocky, stony *quebrada* (a narrow valley), where were remains of stone houses. These would appear to have been constructed by the Spaniards, as there were small clay heaps and traces of small furnaces in the neighbourhood. Finally we found an untouched piece of ground, forming a kind of large island, which had escaped cultivation by the lucky circumstance of its being so much above the general level that it could

not easily be irrigated. This plot was in the centre of the valley through which runs the Copiapó river, on the Cerillos farm, and about twelve miles above Copiapó. This was a spot where the most perfect specimens had been obtained, and here we commenced operations. Beginning at the edge of a break in the ground, one piece being about 4 feet higher than the other, where the surface water in running off had hollowed out the softer portions, with an hour's work we came to two adult skeletons in a very decomposed state. The hole had all sides (except the top and front) very straight and perfectly defined, cut in a hard gritty alluvial soil; it was rectangular in shape, the dimensions being, as far as my memory goes, 2 feet 2 inches by 1 foot 10 inches wide by 1 foot 6 inches thick; that is, with just sufficient room for the bodies. The bottom was of a coarser river grit, unconsolidated, and therefore unlike the soil above, which was almost hardened into sandstone. Before interment it would appear that "tortora" grass (a kind of rush) had been placed at the bottom and back; the bodies and pottery were next put in and the burial completed by a roofing of branches of trees and "tortora" covered with earth. The roof had long since fallen in, filling the whole space: the bodies were side by side in a sitting posture, with the knees pressed tightly under the chin. The heads had fallen off previously to the roof coming in, and were found wedged in alongside the bodies. Here were got a yellow soapstone pendant, for earring or necklace; a boiling pot of shoe shape, and a saucer with handle of painted pottery, the last named being the most regular in shape and colouring of all now dug out, and its glaze being very marked. Unfortunately the saucer was stolen by a stranger. The crockery was found at the feet of the human remains.

After several unsuccessful trials round the same spot, work was commenced at a new place, about 150 yards above in the valley and on the same high level piece of ground. Here we had already noticed evident remains of artificial work, there being some eight or ten domes of very smooth and regularly rounded appearance, the general level being formed of similar soil, and the whole surrounded with scattered trees. The largest dome, about 40 feet in diameter, was selected; it was situated some 200 yards north of the railway, and was, as shown in the accompanying figure, connected with two similar but smaller tumuli.



PLAN OF TUMULI EXCAVATED NEAR COPIAPÓ.
(The crosses indicate the positions of the heads of the bodies.)

The work was commenced by a mistake of the peones at the spot marked No. 1 on this figure. First they cut through about a foot of very fine alluvial soil, which appeared to have been worked up like mortar, laid on wet, and then beaten in hard. This was so dense that the very few showers of rain which fall in this part of Chili would hardly penetrate it. This passed, a course of "adobes" (hard sun-dried mud bricks) 9 inches or 10 inches thick, was found, the interstices being filled with dry earth. Under this was a layer of 2 inches to 5 inches of "tortora" grass, again another layer of dry earth, followed by a second course of "adobes" having in places more "tortora" and a few branches of trees, partly above and partly below the second line of "adobes." The whole formed a very varying thickness, of an average of some 3 feet. The dome shape, which on the surface had rather more than a foot rise in the 40 feet, was not nearly so regularly preserved in the two courses of "adobes;" especially in the lower one, where there were hollows in places, quite a foot deep. This passed, a hard alluvial grit, with boulders and pebbles, was met with, and it continued down to a depth of more than 8 feet without any change. From this a cross-cut No. 2 in the figure was made to pass alongside a spot No. 4, where a depression showed the surface had given way. At first similar ground was met, but on continuing there was a change to a very fine soil, like that found on the surface, with the only difference that it had below been filled in dry. As soon as this new ground was encountered, sinking again commenced, and after passing a thin layer of ashes, we came, at a depth of about 12 or more feet, to a similar and most probably the same river grit met at the bottom of the first find. Simultaneously with this we struck on another rectangular opening, marked No. 3 in the figure, a little smaller than the first and containing the skeleton of the

Indian whose skull and femur were exhibited when this paper was read. As before, the body was interred in a compact sitting posture, and the head had dropped off. As the roof, of branches, &c., was almost intact, a good view was obtained of the body, which was resting on a small quantity of "tortora," placed on the free grit. Hardly a bone had been displaced. Accompanying the remains, at this spot was found a large shoe-shaped vessel in pottery, with a coating of soot still on it. Following the soft run of the ground, we found on the same bottom level at No. 5 in the woodcut a large urn with two handles at the lower part, and painted black, white, and red, and a painted basin of red clay. The urn was entire but badly cracked, the earth having fallen in and crushed it. In getting it out it fell to pieces, but all the fragments were carefully collected. The largest fragment is represented in fig. 2, Plate XXXV*. These pieces of pottery, as indeed all found, were either empty or with earth only in them.

The depression of the ground was over No. 4, where we found a similar rectangular cavity containing an adult skeleton. Here the body was interred at only two-thirds the depth of No. 3, and contained a duplicate of the red-painted basin. Ashes bespeaking a burial ceremony, in which fire had been used, were still met here, and occurred near all the human remains subsequently disinterred, always above, and generally right over the graves. It had also been noticed before that interments were made without regard to the points of the compass, the faces being turned in any direction as convenience would suggest. Alongside No. 4, and at a similar depth, were found scattered remains of two dogs and a pig.

Next, at the spot marked No. 7 in the woodcut, we found a skeleton, buried in a reclined posture, with the knees bent as if the body had lain on the ground until the joints had stiffened. There was a large quantity of "tortora" grass completely surrounding it, but there were no traces of dress. On the bones were *signs of eight arrow wounds*. The right side of the skull has two, one striking in front cutting away the side of the upper jaw and displacing several teeth, after which the same arrow continuing its course penetrated the lower part of the skull and reached the brain. The jaw and first vertebra come next, with wounds, still from the right side, cutting and splitting the bones, and caused by two distinct projectiles. One of the vertebræ and corresponding left rib have marks in three distinct places caused by one arrow, which striking the rib took out a splinter of bone, and again passing through the same rib, where connected with the back, it penetrated the vertebra, *where the flint arrow head still remains*

imbedded in the bone, as represented in fig. 1, Plate XXXV*. Another rib shows a wound of a spent arrow, *the point of which still remains in the bone.* Several facts would appear to show that this skeleton is that of one of the Spaniards, probably interred about the year 1540. The foremost reason is based upon its great size and massiveness. The skeleton in No. 7 was the only one discovered in a reclining position, all the others being in an upright sitting posture, with the knees drawn up under the chin. Again we may note the very much better state of preservation of the skeleton than of No. 3, the second best skeleton found, although the former was exposed on the surface and covered only by some 18 inches of earth, without the protection of the "adobes," &c. It was the sole instance in which the remains of the insects that preyed on the body were found. The skull and the "tortora" round the other bones were nearly filled with the reddish sheathing of small beetles. Lastly, the numerous wounds, the abundance of "tortora" grass, and the absence of the roofing of branches, that, with one exception, was invariably found, are facts which support my view. The skeleton in No. 3, which from its depth and position was *most likely* the first interred in this tumulus, would probably be longer preserved than the others from two circumstances, viz., its depth, and because it was the only one found resting on the grit bottom, which would freely allow any moisture to pass off, while still at some appreciable distance above the present bed of the river, and the average level of the valley.

The interment, No. 6 in the woodcut, opened simultaneously with the preceding one No. 7, furnished the most interesting discovery made, and was the exception just referred to with regard to the roofing. The bottom of the grave was rather over 7 feet below the surface. The sides and top were all of large flat unworked stones, nicely fitted together and cemented with hard mud. The top stones had, if I remember rightly, a considerable slope *both* ways, and overlapping the sides, would with the cementing have rendered it quite watertight. The body, that of a child, had been placed at one end across the grave, and on its left was a large space wherein were found a number of relics. These included a small shoe-shaped vessel in pottery, a basket of vegetable material about 10½ inches in diameter, the latter containing small pieces of drapery and a wooden needle. There were also two round thin gourds 3½ inches in diameter with circular holes nearly 1½ inches in the top. One gourd was plain, the other had a pattern cut on it: both, with the pot, were empty, but the gourds only were found in the basket. There were alongside several small pieces of bone &c., probably toys, and an instrument of similar

wood to the needle, whose use could not be guessed. It was circular in section, with round, half pointed, ends of equal size throughout, and was about 10 inches long by $\frac{5}{16}$ of an inch in diameter: near one end was a flat curved piece of soft white wood, slipped over it, which was badly decayed.

Only two bodies had any hair remaining, although this was carefully looked for. One was the supposed Spaniard No. 7, the other was the child just mentioned.

At No. 8 in the woodcut there was another depression in the ground, and on sinking, at a slight depth, was found another adult. The roofing of large branches of trees had fallen in. The skull was found with an old fracture, and one of the ribs were split. Alongside the latter was a large black stone spear-head. Near were found a pestle and mortar, the former of fine conglomerate about 15 inches long. The mortar was made of the trunk of a tree, over 3 feet long, with an opening at one end running more than half way down. The outside was much decayed, but the lower part inside still had the hard polish given to it by use. Another fragment of a skeleton of a pig was here found, as well as a large flat hollow stone, with the stone pounder which had evidently been used for crushing grain. Of the latter type of implement several examples were got out at different times.

Of the surrounding tumuli, more than one was opened, where we saw hollows in the ground, but nothing of interest was found in them.

The next excavations were at La Puerta, near Los Loros, about 45 miles above Copiapó, in the same valley. Here in a cluster were some thirty tumuli which had escaped demolition. They were situated on the north side of the valley close under some high hills. This district was the most densely populated by the Atacamenian Indians, as proved by history and the numerous tumuli, batches of which are to be found in large numbers in all the little valleys branching off from the main one, though for the most part in very rough stony ground.

At La Puerta, some six or seven years ago, a German professor commenced exploration but with little success, as from what one of the peones who assisted in the work asserted, the digging only went down a little under the upper courses of "adobes." All they appear to have found were a half moon of copper, a bone needle about 6 inches long with a pattern cut on it, some small beads being part of a necklace, and some fragments of crockery. No bones were met with, and a skull brought to Germany was said to have been purchased of some Chilians at Los Loros. In consequence of the above information digging was carried on in the already

partly-worked tumuli, and in each case, on going deep enough, human bones were met with, but in a bad state of decay; otherwise the results were very meagre. A few pieces of the stone necklace above mentioned, a number of fragments of pottery, one being a portion of a large circular coarse vessel, together with some small pieces of fine polished black ware, one or two of the latter having patterns incised with a sharp instrument. There were, further, a piece of a whale's bone, some roughly worked stones, and several pieces of mussel shell with the ends ground square (which appeared to have been used as spoons), and one of the weights of a "bola," viz., the stone with the raw hide casing. The "bola" is an instrument still used in South America. It is generally made with three round stones, cased in raw hide, with hide cords attached, the loose ends of which are fastened together in the centre. When thrown, one stone is held in the hand while the others are swung round the head, and on releasing the bola, the three weights separate in the air and twine the cords tightly round any object they may strike. About half a mile above where we had dug, on the other side of the valley, are the remains of a large Spanish fort, and on going to visit it, some fields were crossed which were completely covered with small fragments of differently coloured Indian pottery.

One of the stone tumuli was also partly opened up. After removing a pile of stones from the top, coarse earth was reached, at about the level of the surface of the ground. Close under this was a layer of stones, in place of the "adobes;" below we came upon boulders and hard ground, making the excavation so difficult that we were glad to abandon it.

It may interest the Institute to hear that a spot where arrow and spear-heads had been manufactured, was found by one of my brothers a few years ago, in a small oasis in the middle of the desert, about 50 miles to the south of Copiapó. After some search quite a collection was made of heads of similar form to those dug up at Cerillos, and in different states of manufacture, from the completely formed, down to the rough chippings.

Explanation of Plate XXXV.*

Fig. 1. Human Vertebra (second dorsal) with flint arrow embedded in the bone; found in a tumulus near Copiapó, at the spot marked No. 7 in the plan on p. 439, natural size.

Fig. 2. Fragment of a large two-handled urn in painted pottery, showing style of ornamentation; found in a tumulus near Copiapó at the spot marked No. 5 in the woodcut plan.

On some Stone Implements *from* British Guiana.

By E. F. Im Thurn, Esq.

[With Plate XXXVI*.]

(A Paper read before the Institute on June 14th, 1881.)

In putting together a few notes on certain stone implements from British Guiana, the first point to which I shall refer is that of the sources from which these were derived. Such implements are no longer to be found in use by the Indians, except in an unimportant way which will presently be described, but they occur under three different conditions; (1) they are found buried in certain shell-mounds or kitchen-middens; (2) they are sometimes found scattered, as are natural stones, on the surface of the ground; (3) and lastly, they are occasionally met with stored and carefully preserved in the houses of the modern Indians. Purely as a matter of convenience, and not because of any distinguishable difference in form between the examples of the three classes, I shall class the implements according to their mode of occurrence.

The shell mounds I have described in detail elsewhere; here there is only room for a rough sketch of their nature and position. They consist of large heaps of shells of edible molluscs, of bones, and of other refuse of human food; and it is amongst this refuse that many stone axe-blades and other implements occur. If it were possible to determine who the makers of these mounds were, this would determine also the question as to the original possessors of stone implements of this class. The mounds occur, without exception, in the low swampy tract of country which lies along the most western part of the coast of Guiana, toward the Orinoco; they are, therefore, in the district of Guiana nearest to the West Indian Islands. Though the evidence for the fact is far from complete, there is, I think, strong reason to believe that these mounds were made by certain Caribs from the islands during the short visits to the mainland which these Indians are known habitually to have paid just before they finally settled in Guiana. If this hypothesis is correct, it might *à priori* be supposed that the implements occurring in the mounds would be identical in form with those of Carib origin from the islands. This to any one comparing the implements which have reached Europe from the mainland and from the islands does not appear to be quite the case. The difference between the stone implements from the shell mounds of Guiana and

the generality of those believed to be of Carib origin in museums is that the latter are far more elaborately finished, and of far more ornamental shape than the former. The explanation which has occurred to me of this difference throws, I think, some light on large numbers of the Carib implements stored in European museums.

If, as many things seem to indicate, the habits of Indians have been the same for centuries, within each tribe, as, where not affected by European influence, they are at the present time, it is reasonable to look to modern habits for explanation of older habits now no longer in themselves evident. Now, from my own experience among the various Indians of this part of South America, I know that in their many leisure hours these people often fashion highly ornamental implements and weapons, which they never actually use, except perhaps ceremonially, but keep them proudly at home, while they take to the fields with them implements the production of which has cost less labour. Accordingly, if the old Caribs shared this habit, it is evident that on these short predatory raids from the islands to the mainland these Indians would have taken with them only their less elaborate implements, and that these only would have been found in the mounds. The habit, both as concerning modern Indians and the mound-makers, whoever these were, may be made plainer by another illustration. At the present time Indians, though when at home they almost invariably boil their meat in vessels of clay and keep their supply of water in bottles of clay, yet when travelling, when these travels are not for the purpose of permanently occupying a new settlement, very seldom carry any pottery with them, but make shift by either roasting their meat in small pieces fastened into cleft sticks, or smoking it, and by carrying water, on the rare occasions when, owing to their travelling away from rivers, this is necessary, in vessels formed of hollowed fruits, these being less laboriously produced, and less fragile than clay vessels. This carefulness of their pottery is closely analogous to the care which they take of their weapons of the better sort. It may be as well to add that in the shell mounds, though these necessarily represent an immense amount of consumed animal food, fragments of pottery are of such very rare occurrence that I have met with them only in a single instance.

If it is objected that there is a weak point in this theory of the Carib origin of the shell mounds and, consequently, of the implements occurring in those mounds, in that I have but asserted, without giving proof, that the mounds were made by island Caribs, I answer, first, that the evidence for the fact is too long to be inserted here; and secondly, that there is less need

of this evidence here, in that, whether Caribs made the mounds or not, it is at least indisputable that there are Caribs from the islands in Guiana, and having had considerable experience of stone implements from various sources in Guiana, I am convinced that none from any source in that country are as elaborate as many, or, indeed, as most of those from the islands. It is, therefore, safe to assume that the Caribs in passing to the mainland did not carry with them their most elaborate weapons.

Finally, as regards this subject, as it is reasonable to suppose that the Caribs who remained in the islands must have retained their share of weapons of the simpler sort, it would be interesting to know something of the numerical proportion which the more elaborate Carib implements from the islands bear to the simpler forms which ought to occur in the same places. Never having paid special attention to the matter, I am under the impression that in museums the former are much more numerous in proportion to the latter than is natural; but this is probably due to the fact that the more elaborate and ornamental forms would naturally be more diligently collected by these modern finders than the simpler forms.

The implements which are found in Guiana, scattered like natural stones on the surface of the ground, occur somewhat rarely, and generally singly, throughout the colony. I have received them from, or found them in, almost every district except the easternmost in the neighbourhood of the Corentyn river, which district is at the present time almost uninhabited by any Indians except such as have been brought there by missions. But just because they are thus sparingly but widely distributed, it is especially noteworthy that, as I have reason to believe, they are to be found collected in considerable numbers in at least one small district. This is at a place called by Indians Toocano, on the Brazilian side of the Takutu river. In passing down that stream, the Indians who were with me asserted that the stones of which I was in search occurred in abundance at that place; and, though various circumstances prevented me from personally investigating the matter, I believe that the statement was true enough, for the offer of a reward for each stone implement resulted in that neighbourhood in the bringing of ten or twelve in a single day, whereas in other places I thought myself fortunate if I got one from the Indians in a fortnight. A probable explanation of this accumulation of stone implements is that at Toocano was once a manufactory of such things; and if so, some light may be thrown on the fact by comparing it with the following modern Indian habit. As I have pointed out elsewhere, of the various Indian tribes in Guiana each does

not make all things that it requires, but each has a special object of manufacture, as, for example, cassava-graters, balls of cotton, hammocks, canoes, pottery, or blow-pipes, and each exchange some of the objects which it thus manufactures for whatever it requires of the things made by other tribes. It therefore seems not unlikely that the manufacture of stone implements, employing great skill, was confined to special tribes, or even, as is the case with the far-famed ourali-poison, to special families, one of which may have had its home at Toocano. In this connection, readers of Hiawatha will probably remember to compare the "arrow-maker" who plays a part in the traditions of North American Indians.

The third set of stone implements, to which I now turn, is that of the examples to be found at the present time stored among the odds and ends in the possession of Indians. They are now never used for any purposes for which they can originally have been intended. I have, indeed, seen an arrow pointed with stone used, but as hardly more than toys. There are probably two reasons for the preservation of these implements now that their original use has disappeared. In the first place, stone axe-heads are now certainly valued chiefly by the pottery-makers as being the instruments best adapted for smoothing and polishing their newly moulded clay; though if one of these is not at hand any smooth pebble is used instead. In passing, I may here observe that the so called "charm-stones" from Guiana, of which there are two examples in the Christy collection, and which are sometimes said to be rough natural pebbles which, for purposes of divination, have been artifically worn into their present smooth shape merely by being long held in the human hand, are, I cannot help thinking, merely natural water-worn jasper pebbles, such as occur in large numbers in the beds of several of the small rivers of the interior of Guiana, which have been selected as being, because of their smoothness, particularly suitable as implements for polishing clay; such, at least, is the use to which they are now put, and such is the explanation of their origin given to me by Indians. To return, however, to the stone implements with which I am now more immediately concerned; in addition to their use as implements in pottery-making, some superstitious value seems to be attributed to them. They are sometimes to be found among the separately kept personal properties of the men; and when this is the case, they cannot be regarded as potters' implements, as pottery is made only by the women. Taken by itself this apparently meaningless hoarding of unused stone implements may not seem of much importance, but it gains significance from the fact that a considerable number of stone implements

thus stored are dignified by being more or less ornamented with colour, generally only a coating of the red pigment (faroah) used by the Indians for very various purposes, but sometimes, as in the case of one example from Guiana in the Christy collection, there is a somewhat elaborately painted pattern certainly of Indian workmanship. This example, though its history is not quite clear to me, was, I believe, procured from an Indian in the neighbourhood of the Wanamuri shell mound about the year 1866. At any rate, the habit of painting these implements seems to indicate that some special value, apart from any possible use, is attached to them.

Though these implements have thus been roughly classified according to their present mode of occurrence, it must not be supposed that any real distinction, in point either of form or of degree of finish, marks the three classes. At one time I thought that those from the shell mounds were less smoothly finished than those from elsewhere; but after seeing large numbers of examples from all sources I was obliged to conclude that no such distinction can be drawn. As regards the material of which all the implements are made, this is evidently somewhat various and generally one or other of the stones which crop out naturally in the country; but my geological knowledge is too slight to warrant my saying more on this point, except that I should be very grateful for any information from those more qualified to speak.

I turn now from the general subjects of stone implements in British Guiana to point to certain actual examples. Implements such as the one represented in fig. 1, Plate XXXVI*, are not only of a type common in many parts of the world, but also represent one of the two most ordinary forms in Guiana. Three of this type are exhibited to the Institute; one was picked up on the surface of the ground, one I found in the possession of an Indian man; and one is from a shell mound.

Two implements, one of which is represented in fig. 2, Plate XXXVI*, are examples which I think more interesting. They are somewhat similar to the last type, but differ in that the faces are flatter, more like those of the blade of a knife, and that the narrow ends, the ends by which they would naturally be attached to handles, are curiously fractured. Their chief interest lies in the fact that their exact use can, I think, be shown with considerable probability.

The chief weapons of war of the Indians are those clubs of heavy wood which are now very common in European Museums. These differ considerably in form according to the tribe by which they were made. The habit of inter-tribal war having now practically disappeared, though only within the



Fig. 1.



Fig. 4.



Fig. 6.



Fig. 5.



Fig. 2.



Fig. 3.



Fig. 7.

J. P. Emslie, del.

J. P. & W. H. Emslie, lith.

STONE IMPLEMENTS FROM BRITISH GUIANA.

Half real size.

last forty years, such clubs are no longer made. The few that are still to be found in the possession of Indians are made entirely of wood. But there is an Indian tradition that they used to be made more formidable by the addition of a stone blade; and in the Christy collection there is a club of this sort with a small stone blade inserted in one side, as the blade of an axe in the handle. The blade of this Christy club resembles so very closely the two somewhat peculiar stone blades now under notice as to afford strong reason to suppose that they were identical in purpose; and this receives confirmation from the curious fractures at the narrow ends of my blades. The fracture is not only exactly such as would be made if a blade of this kind were broken off by a sudden shock from a club of heavy wood into which it had been inserted in the way I have suggested, but is also, on the one hand, exactly alike in both these examples, as well as in all other blades of the same character which have come under my notice; and is, on the other hand, of a kind which, as far as I am aware, is not exhibited in blades of any other shape.

There is another circumstance which, though in itself perhaps of no great significance, may be mentioned in connection with this suggestion. Having on one occasion asked some Indians in the neighbourhood of a shell mound—when, therefore, stone axe-blades were not very difficult to procure—to show me how they thought such implements ought to be fastened into handles, they illustrated their ideas by procuring examples and attaching them. The nature of the result is represented in this woodcut.



The handle of the axe thus produced is of light wood which would certainly split at the first blow, however slight; and the heavy blade is inserted in a way quite different from that in which stone blades are usually supposed to have been fastened into the handles. The whole implement appears, in fact, absurd. But closer attention shows that the result, allowance being made for the use of light, instead of heavy wood, and for the haste and want of serious purpose with which my example was made, is exactly such as, according to my suggestion, the war clubs were.

The facts just mentioned suggest another reflection. The reason of the abandonment of the use of stone implements generally was of course the acquisition of metal implements of European manufacture which better answered the same purposes. But though Europe supplied such articles as knives and axes, it did not supply war-clubs; and the Indian had to make the latter for himself, long after he had given up making

the former. It seems probable that the purpose for which Indians most recently worked stones was for these blades of war-clubs. That they eventually gave up even this survived practice, and adopted the fashion of making their clubs with the difference of the omission of the blade, was probably due to the fact that, all other stone implements having been supplanted by those of metal, the art of working in stone was so little practised that it was soon lost, and the Indians were no longer able to make even blades for their war-clubs.

Fig. 3, Plate XXXVI*, represents the commonest type of all in Guiana. The shape varies slightly, but the outline has been well compared to that of the section of a "button-mushroom," which has been cut in half from the apex of the cap down through the stem. Implements of this form, though they occur in all the three ways which have been described, are especially abundant in the shell-mounds; and from this circumstance, as well as from the fact that they can hardly have been very formidable weapons, it seems not unlikely that they were domestic implements such as would be used for pounding, and for cracking shells of molluscs and bones of animals. It is, however, noteworthy, and not readily explicable, that these implements have the groove on each side, dividing them into handle and blade, which is exhibited also in examples of many other forms from this part of South America.

Fig. 4, Plate XXXVI*, is a small, but beautifully-finished blade, in which grooves, such as are spoken of above, occur in a somewhat varied form. In this case they are just such as would be most favourable to lashing the stone on to one side of a stick. The grooves, or to use what is in this case a more expressive word, the nicks, are in fact very like those which the Indian still makes in the cross-beam of his house at the point at which he is about to lash it with flexible plant stems to the upright corner post. Yet even if we suppose it to have been thus lashed to a wooden handle, it is somewhat difficult to realise that such a tiny axe can have been of much practical use.

In fig. 5, Plate XXXVI*, we have again a grooved form, but with the difference that just below each groove there is a projecting shoulder, which probably had some definite use, but which certainly makes the implement approach more nearly than any other I know from Guiana to the elaborate stone implements of the island Caribs.

This being the last grooved implement which I shall have occasion to mention, I take the opportunity to say that I can find no satisfactory explanation of these grooves in the literature of the subject, and that I should be greatly obliged for any information on the point.

Fig. 6, Plate XXXVI*, represents a very peculiar example, much resembling in shape a human foot with the leg as far as the knee. The cutting edge is where the knee would be in a leg; and the sole of the foot is so hollowed as exactly to fit the thumb when the stone is grasped with one hand. There can be no doubt that this implement was never intended to be fitted to a handle, but was grasped in the hand; and thus held, it would answer the purpose of a chisel or small adze, and would be a formidable offensive weapon if its holder was at close quarters with an antagonist. Mr. Tylor has pointed out to me that some American Indians, I believe in British Columbia, have been seen to fight with stones thus grasped in the hand, and that this is done with so great agility and dexterity that the Indian armed only with a stone in his hand can prove formidable to an opponent armed with a revolver. My implement was possibly used in this way.

Fig. 7, Plate XXXVI*: This, the last example, is far the most peculiar. It so closely mimics the shape of an ordinary European hatchet blade that it is impossible to doubt that it is a copy in stone of such a metal blade; and it is so beautifully finished that it must have been made while the art of working stone was still thoroughly understood. It must, therefore, have been made after the arrival of Europeans in the country, but before the art of the stone-worker had degenerated. Its date is, therefore, probably to be attributed to the 17th century.

Finally, and in connection with this hatchet, it may not be uninteresting to point out the analogy between three different objects of Indian manufacture, all of which belong to one stage in the history of Indian development. The first of these three analogues is the axe-blade which I have just described, and which is the result of an attempt to use the material and method of an Indian art for the production of an European form. The second analogue is to be found among the rock engravings which form so curious a feature in the scenery of British Guiana. These engravings are pictures cut with lines varying from $\frac{1}{16}$th to half an inch in depth on the faces of solid granite rocks. Generally, the objects represented are such as are familiar to the Indian; but in one case, a ship, which, if I may judge from the few European contemporary drawings I have been able to find, is a galley such as was used by the Spaniards in their earliest visits to the South American coasts, is represented. In this case also, therefore, the Indian artist used his art to produce an unfamiliar form first shown to him by Europeans. The third, and last, analogue is to be found among the pottery of the Indians. These people make all the vessels required for their own use of a few, I think, of only four

definite shapes; but, sometimes, though very rarely, about their houses may be seen vessels made at idle moments and not for use, evidently copied from European forms. The rarity of these imitative attempts may be illustrated by the fact that, among very many hundreds of vessels of genuine Indian shape, I have not met with more than half-a-dozen imitated by Indians, at their own instigation, from European shapes.

Thus the stone hatchet, the rock-pictured ship, and these exceptional pieces of pottery, alike show the power of Indians to adapt their methods of art to the production of European forms; and the rare occurrence of such examples illustrates the rarity of the exercise of this power.

Explanation of Plate XXXVI.*

Figs. 1 to 7 represent seven stone implements from British Guiana, brought to this country by Mr. Everard F. Im Thurn, and described in detail in the foregoing paper. All the figures are drawn to one-half linear scale.

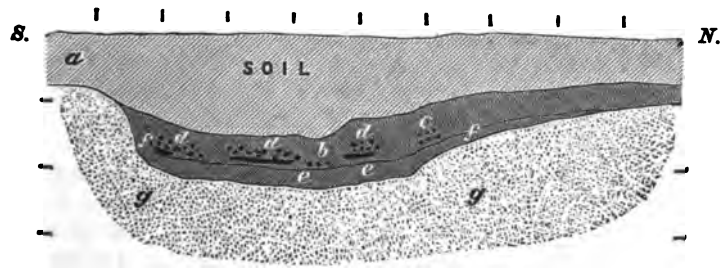
On SEPULCHRAL REMAINS *at* RATHDOWN, CO. WICKLOW.

By GERRARD A. KINAHAN, Esq.

(A Paper read before the Institute on June 14th, 1881.)

WHILE examining the drift composing the cliffs to the north of Greystones, I observed that some of the fine sand in some places appeared to have been burnt or baked; the exposures having been caused by falls of the cliff after the severe frosts of January, 1881. On closer examination it occurred to me that they might be the remains of some prehistoric interments, as in one of them there were fragments of burnt bones and stones, also some rude pottery.

As represented in the accompanying section the surface of the ground is quite level; and probably has been tilled for ages, although for some years back lying idle. The soil is from 9 to 12 inches deep, overlying gravel and in places fine sand. Where these remains occur in the townland of Rathdown, the subsoil is a fine yellow sand, and in it there is a hollow.



SECTION SHOWING POSITION OF THE SEPULCHRAL REMAINS.

a Soil. *b* Black earth with burnt stones. *c* Charcoal. *d* Fragments of urns. *e* Fragments of bones. *f* Baked sand. *g* Fine sand.

The hollow as seen in section on the face of the cliff is 7 feet long, its termination being well marked to the south, while to the north it gradually tails out. The bottom of this hollow is bounded by fine sand which is baked for a depth of about 3 inches; resting on this is a layer of black earth, about 6 inches thick, containing fragments of burnt bones, charcoal, and rude pottery; the pottery evidently resting *above* the bones, which formed a layer about 2 inches thick; above and surrounding the pottery, in many cases resting on fragments of it, were numerous angular burnt stones, generally small, but nothing like a flag was observed. From the position of these, it may be suggested that originally they covered the urns, and that the breaking up of the latter was due to their superincumbent weight. The urns seemed to be two in number, that to the south being red, most pieces of it occurring between the 2 and 3 feet vertical lines, the other was less burnt, and was certainly inverted, although fewer fragments of it were obtained. The bones, in very small fragments, were all outside the urns. Such remains as could be collected were submitted to Dr. Frazer, M.R.I.A., who has favoured me with the following remarks:—

"There are fragments of burned bones much acted on by fire, and curled from the heat, but apparently only parts of one skeleton, and even this fragmentary. A few of the bones can be recognised; thus there is a small fragment of the frontal bone, a few fragments probably of the thigh bone, and also some of the tibia and fibula, and there is a fragment of the lower end of the radius; from the latter bone it would be probably fair to conclude the person was an adult, and from the narrow edge of the tibial fragments the bone was probably platycnemic.

"The urns are made of rough clay, with fragments of mica perceptible, and the workmanship agrees in all respects with

many already described. You will find a good account of such in Schlieman's work on 'Troy,' p. 219.

"There appear to be fragments of two urns; so I would conclude from slight differences in the slopes of two pieces, but I have so few of the fragments and parts that I have not been able very satisfactorily to reconstruct the urns."

About 10 yards north of this interment there was another small hollow in the drift, the bottom of which was also baked, but no remains of any kind were obtained from it, except a few small fragments of charcoal; probably the greater portion had been carried away with the denudation of the cliff.

JANUARY 10TH, 1882.

MAJOR-GENERAL PITT RIVERS, *President, in the Chair.*

The Minutes of the last meeting were read and confirmed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the Rev. C. VOYSEY.—Remarks on the Aborigines of the Andaman Islands. By Ed. Salisbury Brander, M.B.

From Professor AGASSIZ.—Annual Report of the Curator of the Museum of Comparative Zoology at Harvard College, 1880–1881.

From the AUTHOR.—Nuovi Studi Craniologici sulla Nuova Guinea. By Paolo Mantegazza.

From the ASSOCIATION.—Journal of the Royal Historical and Archæological Association of Ireland, April, 1881.

From the ACADEMY.—Die Kaiserliche Akademie der Wissenschaften, Wien: Sitzungsberichte philos-histor. Classe, 1880. 97 Band, Hefte 1, 2, 3, 1881; 98 Band, Hefte 1, 2.

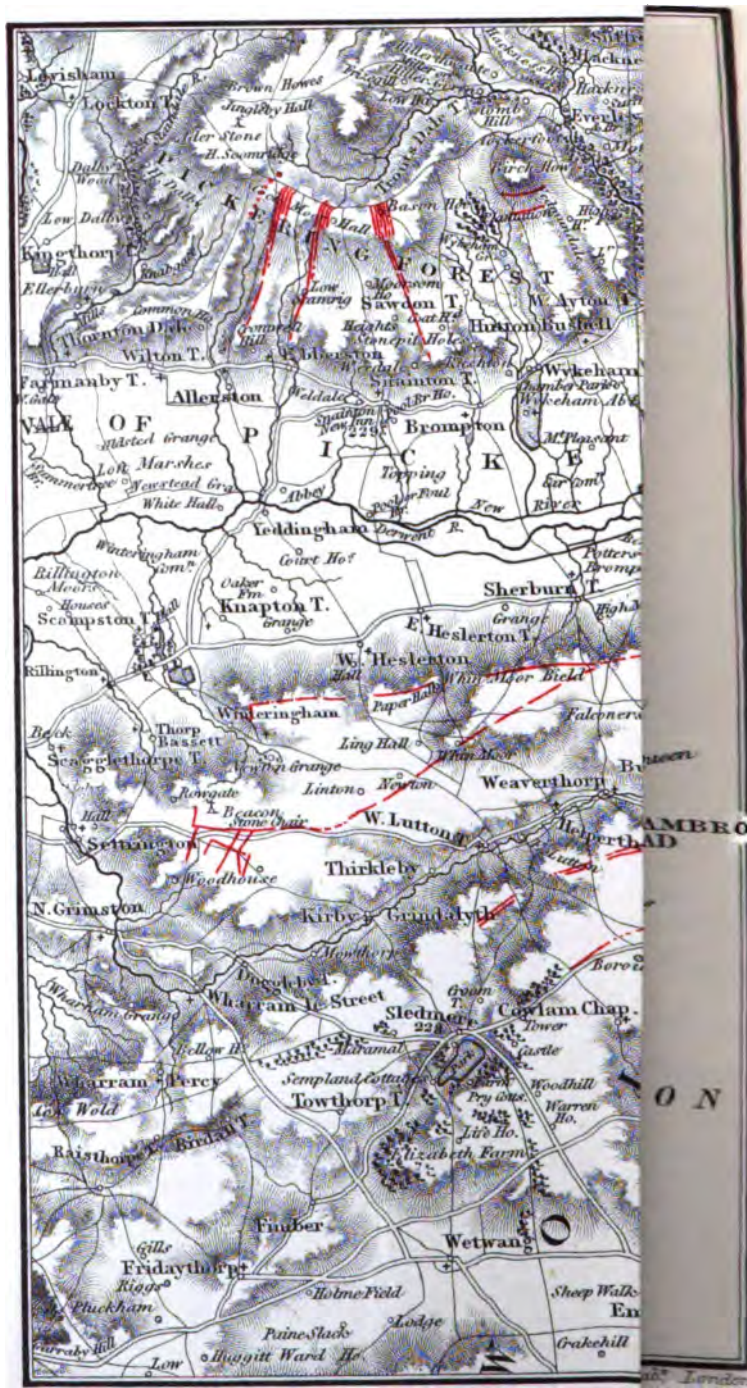
Sitzungsberichte math.-naturw. Classe, I. Abthlg. 1880: Nos. 8-10, 1881, Nos. 2, 3, 4. II. Abthlg. 1880, Nos. 8-10; 1881, Nos. 1-4. III. Abthlg., 1880, Nos. 8-10; 1881, Nos. 1 and 2.

——— Almanach, 1881.

From the ACADEMY.—Atti della R. Accademia dei Lincei, Vol. VI, fas. 2.

From the SOCIETY.—Journal of the Society of Arts, Nos. 1517-1520.

——— Journal of the Royal Geological Society of Ireland, Vol. XVI, Part 1.


Lovisham
Lockton T.
Brown Howes
Jingleby Hall
Hackness
Rockcliffe
Everley
Hole Bridge
Hill
Dalby Forest
Low Dalby
Kingthorpe
Ellerburn
Thornton Dale
Common Ho.
Wilton T.
Sawdon T.
Heights
Stonepit Hole
Hutton Bushell
Wykeham
Farmanby T.
Allerston
Weldale
Brompton
Sawdon Br. Ho.
Marshes
Newstead Grg.
White Hall
Abbey
Topping
Yeddingham
Court Ho.
Derwent R.
New River
Wateringham
Billington
Knapton T.
Scampston T.
Sherburn T.
E. Heslerton T.
W. Heslerton
Rillington
Winteringham
Ling Hall
Thorpe Bassett
Scagglethorpe T.
Rowgate
Linton
Weaverthorp
Beacon
W. Lutton T.
Seamerston
Thirkleby
Woodhouse
N. Grimston
Kirby Grindalyth
Wharram le Street
Sledmere
Cowlam Chap.
Wharram Grange
Yellow Hill
Wharram Percy
Towthorp T.
Low Wold
Raisthorpe
Birdsall
Elizabeth Farm
Fimber
Wetwan
Gills
Fridaythorpe
Riggs
Pluckham
Holme Field
Sheep Walks
Lodge
Paine Slacks
Grakehill
Huggitt Ward Ho.
Low
N
AMBROUGH
AD
ON

From the Society.—Journal of the North China Branch of the Royal Asiatic Society, 1880.
——— Journal of the Asiatic Society of Bengal. Vol. L, No. 244.
——— Proceedings of the Royal Society. No. 216.
——— Proceedings of the Royal Geographical Society. January, 1882.
——— Bulletin de la Société de Borda, Dax, 1881, Part 4.
——— Verhandlungen des Naturhistorisch-medicinischen Vereins zu Heidelberg. N.S. III, Part 1.
From the Club.—Transactions of the Epping Forest and County of Essex Naturalists' Field Club, October, 1881.
From the Editor.—"Nature." Nos. 633–636.
——— Revue Scientifique. T. XXVIII, Nos. 25–27; T. XXIX, No. 1.
——— Knowledge. No. 5.
——— The American Antiquarian. Vol. IV, No. 1.
——— Matériaux pour l'histoire de l'homme. T. XII, 10e and 11e liv.

It was announced that Mrs. Bathoe and Hugh Falvey, Esq., had been elected members.

Mr. Bryce M. Wright exhibited a set of sixteen portraits of the Incas, copied from the native Indian drawings in the temple of the Sun.

Mr. Worthington G. Smith exhibited some stone implements from the north-east of London.

The following paper was read by the President:—

On Excavations *in the* Earthwork *called* Dane's Dyke *at* Flamborough *in October*, 1879; *and on the* Earthworks *of the* Yorkshire Wolds. By Major-General Pitt Rivers, F.R.S., P.A.I.

[With Plates XXXVII to XXXIX.]

Flamborough Head, as most persons are aware, is a promontory on the Yorkshire coast immediately to the north of Bridlington, in lat. 54° 6′ N. and long. 0° 12′ E., and as this paper has to deal with an entrenchment thrown up on it obviously for warlike purposes, and with other entrenchments apparently connected with it further inland, it may be useful to consider briefly the topography of the neighbourhood in reference to military operations and more especially to the landing of a considerable force in this place in pre-historic times or the retreat of such a force by this place to the sea. (*See* Map, Plate XXXVII).

This promontory is triangular in form, its base on a north and

south line commencing at Sewerby Rocks, north of Bridlington, and ending at the Crab Rocks to the north of that, is 3½ miles; the perpendicular drawn from the point of the head to this base is about the same distance.

The ground comprised within this triangle and for some distance inland to the west is high, being composed of chalk hills cut up into valleys and ravines of greater or less width and affording numerous positions for defensive purposes.

The promontory itself is bounded on the two sea sides by high and inaccessible cliffs with the exception of two gaps, one on the north and the other on the south side formed by narrow and deep ravines running down into the sea and called the North Sea Haven and South Sea Bay. At Sewerby Rocks the southern coast-line turns and runs southwards passing by Bridlington Quay and Hornsey, but the character of the coast-line changes; leaving the high chalk cliffs at Sewerby Rocks, the shore southward is low and composed of boulder clay and alluvium. The southern boundary of the chalk hills, instead of conforming to the line of the coast, runs on inland in prolongation of the south side of the promontory extending in a direct line west by south towards Burton Agnes and Driffield, and the whole of the country between these hills and the sea southward is low and marshy, intersected with watercourses, and probably in pre-historic times a swamp inaccessible for warlike purposes. It is important to bear this fact in view when considering the direction and uses of the entrenchments on the high ground, that the flanks of the entrenchments which rest upon the edge of the hills on this side would probably be protected by an impassable morass.

On the north side of the promontory as you go westward from the point, the coast line does not turn northward until you come to Speeton, a distance of 7 miles, the whole of this distance being high cliff. Here the coast-line leaves the hills and runs up along a low shore to Filey, but the edge of the hills runs on in continuation of the line of the cliff 3 miles further westward to beyond Righton, affording strong ground as a protection from the north.

If we now turn southward and place ourselves on the site of the ancient village of Argam with our backs to the point of the promontory looking westward over North Burton in the valley below, and survey the whole of the wide extent of country which presents itself to the eye from this point, the whole of the ground appears as if it had been scooped out by nature for the defence of an army facing inland and westward, and having its centre in the place on which we stand. Immediately in front is a large and broad valley running north and south and protecting

the front of the position which runs along the hills on the east side of it. The right of this position is guarded by the steep declivity at Righton and the left by the valley of the Gipsey near the village of Rudstone, celebrated for its monolith. In our front westward, beyond the north and south valley I have spoken of, runs the Wold valley in the direction of Weaverthorpe, exposed to view for miles from the position at Argam, and on our right and left front, also beyond the valley, are the chalk hills known as the Yorkshire Wolds which bound the Wold valley on both sides. We shall see when we come to describe the entrenchments, that the advantages of this position were not lost sight of by the people of pre-historic times.

Passing now out of this region to the north-west into the valley of the Derwent and the neighbouring hills, all of which country is occupied by the entrenchments of the pre-historic people, we find that the river running southward from Hackness to near Willerby here turns to the west, and runs along the broad flat-bottomed valley of the Derwent, which is some four miles in width, and probably in pre-historic times, like so many other valleys in this country, an impassable jungle traversed by narrow paths and openings through a thick growth of underwood, inaccessible for warlike purposes to any but a force with a narrow front penetrating through it in file. The valley is bounded on the south by the long and nearly straight escarpment of the chalk hills rising to 400 feet above, and commanding the whole extent of it in a line generally parallel to the river. On the north the valley is bounded by hills of the oolite formation nearly equal in height, but intersected by numerous long ravines running southward into the valley, and affording several positions of great strength for the defence of an army advancing inland to the west, or retreating eastward to the sea. The highest part of these hills are towards the north, along the head of the ravines above-mentioned, and the whole of this range of hills is bounded on the north by a deep winding valley formed by Troutsdale Beck, a bend of the Derwent, and a continuation of the same valley, passing by Hackness and Scalby to the sea north of Scarborough.

Reviewing the whole district under consideration, we find that it consists of four patches of high ground separated from each other, and bounded by five principal valleys, viz.: the triangular patch of hills to the east with Flamborough Head for its apex, separated from the wolds by the north and south valley of the Gipsey Race before Argam, and bounded on the south by the Gipsey valley, and further on by the lowland south of Burton Agnes. Next we have the two parallel patches of the north and south wolds, separated from one another by the wold

valley, and bounded on the north by the Derwent valley, and lastly the oolite hills, bounded on the south by the Derwent valley, and on the north by the valley running in a winding direction from the Troutsdale Beck to the sea at Scalby.

Assuming most of the low ground to have been occupied in pre-historic times by marsh and jungle, there would remain only the plateau lands on the hills for the inhabitants to live upon, and here, as might be expected, we find the ground covered with their remains, consisting of tumuli, pits, camps, and entrenchments, which are, perhaps, more abundant here than in any part of England, owing to the wolds having only recently been brought under cultivation. Much of these have already been destroyed by the plough, but they have been well delineated on the ordnance maps, and it is important to consider the condition of things implied by the direction of the intrenchments before they have entirely disappeared.

Flamborough Head and promontory must of course have formed the base of operations for warlike purposes in any case, whether we are dealing with an invading or retreating force; in the former case it would be the first, in the latter the last point occupied by any people at war with the inhabitants of the interior. Its high cliffs precluding all possibility of attack from the sea, and leaving only the land side to be attended to, and the two landing places above described affording such access to the sea as might be necessary, we should naturally expect to find an entrenchment facing westward and occupying the first suitable position westward as you go from the point towards the interior, covering also the two landing places in such a way as to leave them available for the people within the work, the two flanks resting on the high cliffs before they leave the sea-coast owing to the turn of the shore, and the front covered by such low ground and declivities as might present themselves in the parts most suitable for the position of the flanks. Such an entrenchment we do find commonly known as the Dane's Dyke, a misnomer as will subsequently appear, but not more erroneously named than others which are attributed to those pirates and ravagers of the sea coast of England in other places, or those which go by the name of Cæsar elsewhere.

This dyke runs north and south a distance of 2½ miles from sea cliff to sea cliff and at a distance of 3 miles from the centre of it to the point of the promontory. It has a ditch on the west or inland side, showing that the enemy was expected from that quarter. Its position appears to have been determined by a deep but not very broad ravine which runs from the interior southward into the sea, and protects the left

end of the entrenchment for 7 furlongs, or about one-third of its entire length. The rest of the line of the dyke is well chosen for defence, following the slope of the ground so as to command a good view of the land on the outside, but like many pre-historic entrenchments, especially dykes, it does not follow closely the sinuosities of the ground, but cuts across the spurs of the hills where the turns of the latter are abrupt. This is particularly the case near Dyke House, where the entrenchment instead of bending to see down into the ravine as a modern fortification would do, cuts across two spurs and rejoins the main ravine further on, a defect in the system of fortification common to pre-historic and early times, and in no work more conspicious than in the great Roman wall near Carlisle, the engineer of which allowed dead ground to run up in some places close outside the fortification. In like manner the dyke omits to take advantage of Cockerill Hill, as it should have done, but it is nowhere commanded from the outside; it is judiciously chosen, and on the whole commands an extensive view of the country for some distance to the westward. There are twelve gaps through it, some of which are no doubt modern, one is on the extreme right flank of the dyke, between it and the sea cliff—a position not unusual for the entrance of a pre-historic work; another near the Dyke's Plantation, in the right centre of the dyke, is admirably constructed in a re-entering angle, evidently intentionally formed to give a cross-fire on the outside. The gap through which the road from Bempton to Flamborough passes in the centre of the position appears also to be an old entrance, because the road here turns as if it had been diverted in order to pass through the gap. A small stream coming from the north also runs through the entrenchment here passing into the inside of the dyke, and affording a supply of water to the defenders, running out again further on to the south.

The entrenchment is of nearly uniform height all along, being about 18 feet above the level of the ground, and having a ditch 60 feet wide on the outside. Of the defensive character of this entrenchment there cannot be the slightest doubt; it is a work of great strength, probably surmounted originally by a pallisade on the top of it and implying a large and well disciplined force for the construction and defence of it.

With the exception of two entrenchments between the north end of Dane's Dyke and Speeton, which run from the edge of the cliff southward and the ends of which have been ploughed out by cultivation, nothing of any consequence occurs in the way of military defence until we come to the great position at Argam before alluded to. Here we find the remains of the great earthwork known as the Argam Dyke running along the

edge of the hills in the precise position which I have indicated as forming the first position for defence as we go inland from the Dane's Dyke. Immediately to the west of Righton upon ground which naturally forms the shoulder and key of the position on that side, we find the entrenchments running round the hill with a ditch to the westward and abutting upon the steep declivity on which the flank of the position rests. From that point southward to the west of the Doterel Inn the line of entrenchments has been destroyed by cultivation. This must have been the weakest part of the position, but the banks reappear immediately to the east of the Bartingdale plantation and run in a direction south-by-west towards Argam. The line here does not follow the curves of the hills but always commands the ground to the west, whilst from Argam to the hills immediately above and to the east of Rudston the position is such as any general of modern times might have chosen for the defence of the ground, the entrenchments conforming to the lines of the hills and commanding a gentle glacis slope to the westward. A great part of the dyke has been destroyed in the formation of a modern road which runs along it, but here and there parts in more perfect preservation show that it consisted of three banks and two ditches contained within a width of about thirty-five paces. It is noteworthy that the entrenchment does not run down to the village of Rudston but rests on the high ground above and to the east of it, running towards the valley of the Gipsey which guarded the left flank of the position. Beyond the Gipsey to the south there is a long hill running north-east by south-west called Wold Gate, which if not occupied would have facilitated the turning of the left flank of the position, and accordingly we find that entrenchments were thrown up on the top of it exactly in prolongation of the Argam Dyke. What the nature of these entrenchments were it is difficult to say now, as they are mostly destroyed by cultivation, but they evidently guarded the space between Rudston and the low ground already referred to beyond Burton Agnes. The front of the position from Righton to Rudston is 5 miles, which was fortified by a continuous dyke. The extension from Rudston to Burton Agnes is 3 miles more. A combination of circumstances, including its generally strong position on the side of the valley, the fact of its being the first position inland from Flamborough Dyke, the position of the ditch, its strong flanks, and general direction, unite in favouring the opinion that the Argam Dyke is in reality a defensive work and not a mere road from Filey to Rudston, though it may undoubtedly have served both purposes, both being places of great antiquity.

Passing now to the north wolds we find that an entrenchment

runs along the top of the escarpment of the Derwent valley. It appears originally to have extended from Hunmanby on the east, to above Heslerton on the west, and guarded the north wold hills from an attack from the Derwent valley. A branch from this dyke runs in a south-westerly direction from the high ground above Sherburn to the high ground at Linton, and there turns to the west along the hills to Thorpe Basset Wold. This line defends the wold hill from any attack by the north-west up the valley at Wintringham. I have followed this line, and though complicated in some places, it is everywhere consistent with the idea of a defence against the north-west.* Behind, and parallel to this, two miles in rear, are double dykes running between Kirby-Grindalythe and Butterwick, also occupying a strong position on the hills towards the north-west; behind this again, 1½ mile in rear, are other dykes parallel to the last, running between Sledmere and the hills west of Thwing, also occupying a position for defence against the north-west. Besides these, the north wolds are covered with numerous smaller entrenchments running more or less in a north and south line. It would unnecessarily occupy the attention of the audience to record here the minute observations on which alone a satisfactory judgment can be formed. I have examined them carefully, and they all appear to me consistent with a defence against an inland enemy. They appear for the most part to be fortified boundaries of lands. The villages having mostly been situated on the slopes of the hills near the springs between the wooded bottoms of the valleys and the open downs, the dykes run over the chalk hills behind, and probably mark the extent of the pasture lands, view being always had to an attack from the west. I have found no well-defined example in this part of Yorkshire of a dyke which appeared to have been thrown up as a defence against the east side.

But the most instructive portion of the whole district is the oolite range to the north of the Derwent valley; these hills, as I have already said, are cut up by deep ravines running from the highest ridge on the north to the valley on the south, and affording numerous strong positions for defence. Givendale is a ravine which runs into these hills to the north of Allerston, it is there about 1,000 feet wide and 200 feet deep, with very steep sides. A single line of entrenchment runs along the eastern brow of it; higher up the ravine becomes shallower,

* When this paper was read at the York meeting of the British Association, Mr. Isaac Taylor, who lives near Wintringham, made some remarks tending to show that an entrenched camp existed on the west flank of this dyke, which he conjectured to be of later date than I assume for the majority of the entrenchments. Excavations alone can prove whether this is the case.—A. P. R.

and less formidable as a natural defence, and the entrenchment on the brow is doubled. It has here two banks and two ditches, each 6 feet deep, within a width of 80 feet; and the eastern bank commands the western. Within 2,000 feet of the brow of the Troutsdale Ravine the Givendale Ravine shallows out to nothing, leaving a ridge of ground between the two ravines entirely devoid of any natural defence, and here the entrenchments are increased to four ramparts and four ditches across the weak ground. The ends are thrown back on the brow of the Troutsdale Ravine so as to cover the right flank. This is the system of defence persistently adopted in all pre-historic works in this country, whether camps or dykes. The number of ramparts are proportionate to the natural strength of the ground in front, and as the latter diminishes the former are increased, thereby affording, what the engineers of that time appear to have considered, a fortification of equal strength throughout, it being a principle of defence at all times that a chain is no stronger than its weakest link. A fortification is no stronger than its weakest point. This part of the defences are covered on the west again by lines of pits of very remarkable construction, some being from 17 to 24 paces apart, others touching one another 12 feet wide, and at the present time about 2½ feet deep below the surface ground excavated and thrown up around them. These pits are marked on the ordnance map as ancient, if so, they are well worthy of careful examination. Can they be lines of pitfalls dug outside the entrenchments as an additional defence on their weakest side? About a mile to the rear of this Givendale line eastward we find another ravine parallel to it called Scameridge Slack, fortified in precisely the same manner, a single entrenchment runs along the east brow of the deepest part, and this increases to six trenches across the neck of high ground adjoining the Troutsdale Beck. This appears to have formed a second line of defence. Further to the east again another and third ravine called Wydale is fortified in the same manner, except that the number of ramparts on the weak point extends to twenty in all, and covers the whole of the western slope of the hill; it might be supposed from their number that they could hardly be entrenchments, but no other interpretation can be put upon them. Two small tumuli are seen in the centre of these banks which appear to me worthy of the attention of local archæologists, for by careful examination of the stratification of the soil in the banks and in the tumuli it might be possible to ascertain which of the two are the earlier structures. To the east of this in the direction of Scarborough numerous other entrenchments occur. I have examined them and they all appear to me in harmony with the

general idea of westerly defence, allowance being made for the shifts and vicissitudes of a protracted war. I assume that an invading force having landed at Flamborough, a portion crossed the Derwent and occupied the hills to the north, fortifying each successive strong point as they advanced, or else that a retiring body has chosen these positions whilst retreating towards the sea. I should mention that all the dykes are ploughed out by cultivation on the south, and that on the north they all rest on the steep and almost inaccessible slope of the Troutsdale Ravine.

These observations were made in 1867 whilst accompanying Canon Greenwell during his excavations in the tumuli which cover this district, and I for some years contemplated an excavation in the Dane's Dyke to ascertain if possible the period to which it belonged. I cannot say that I received much encouragement from my archæological friends, most of whom thought, and with much reason, that the chance of finding anything in the small portion excavated was too remote to warrant the undertaking; but in the meantime I had acquired some experience in the excavation of earthworks in other parts of the country, and the results of those diggings led me to form a more hopeful view of the prospect. Although objects of value rarely turn up in the bodies of ramparts, they almost invariably produce reliable evidence of the time of their construction. A cutting through a rampart affords the only reliable evidence of the date of a work. Entrenchments were often occupied in after times by other people who left traces of their occupation upon them, but any object found on the old surface line beneath a rampart must be as old as the rampart or older, whilst any object found in the rampart itself must very probably be the date of its construction.

With the kind permission of Mrs. Dormer, to whom the ground belongs, I at last commenced cutting a section through the Dane's Dyke, on the 13th October, 1879. I selected the spot close to the Bempton and Flamborough Road, at which the stream which runs from the northward passes to the inside of the dyke, thinking that as this was a spot from which a water supply had been obtained by the defenders, they would probably have congregated on the rampart and dropped their utensils about in this place.

The cutting was made by a succession of trenches 20 feet in length, and 8 to 10 feet wide, side by side (*see* Section, Plate XXXVIII), commencing the first trench near the foot of the interior slope, and throwing the earth towards the inside of the rampart; the second trench was then dug above and parallel to it, throwing the earth into the first trench, and so on; by this

means a section 20 feet wide through the rampart was obtained. The objects found were noted hour by hour as the work went on and the position of anything of importance was at once taken with a spirit level. Each trench was dug down until the line of the old surface beneath the rampart was reached, and this process was continued into the body of the rampart until it was thought that sufficient evidence had been obtained.

By cutting a rampart in this way I have found that a cleaner section can be taken, and the position of the objects marked with greater accuracy than by cutting a continuous section through. A wall of earth about 1 foot wide was left between each trench.

The following are the several seams of earth forming the portion of the rampart excavated, commencing from the top:—

1st. Silting consisting of a deposit of brown mould commencing at a point on the top of the rampart and thickening gradually to 3 feet at the foot of the interior slope; it had been formed on the top by the growth of gorse and vegetable soil subsequently to the construction of the rampart and the lower part of it by silting from the top during subsequent ages. All the objects contained in this silting must be subsequent to the construction of the rampart, or of the period of its occupation.

2nd. A seam of light yellow and blue clay also commencing at a point on the top, and to the west of the former, and thickening to 3 feet at the foot of the interior slope; this seam formed the upper part of the original body of the rampart, and consisted of the last portion of soil excavated from the ditch and thrown down the slope from the top.

3rd. An irregular seam of blue, dark-brown, and peaty earth, stratified in seams of dark-brown and yellow under the crest of the rampart.

4th. Gravelly clay, 2½ to 3 feet, being deposits thrown up on the rampart from the lower parts of the ditch.

5th. Black peaty earth reached in the fourth trench only, being the surface soil of the ditch first thrown up to form the rampart.

6th. A nearly horizontal dark seam about 1 foot thick, marking the old turf and surface soil before the earth was thrown up on to it to form the rampart. All objects found on or beneath this line must be older than the formation of the rampart. This was very clearly marked everywhere; it sloped up here slightly towards the outside, owing to this being the part in which the watercourse having passed to the inside, the ground on that side was slightly lower than on the outside.

The following were the objects brought to light by the excavations:—

1st. A fragment of brown smooth pottery with a hole (Fig. 1, Plate XXXIX), evidently intended to suspend the pot by means of a cord; such a piece might be of various periods. Suspension holes of this kind were not unfrequent in the pottery of the bronze age: it was found at the bottom of the silting at the foot of the interior slope, and belonged to the period of the first occupation of the rampart. (See Plate XXXVIII, 1.)

2nd. A cluster of flint flakes, 6 feet 7 inches beneath the surface in the third trench in the blue seam in the body of the rampart; they must have been deposited during the formation of the rampart. (Plate XXXVIII, 2.)

3rd. A flint scraper, 4 feet 7 inches beneath the surface in the third trench in the light yellow clay of the body of the rampart (Fig. 2, Plate XXXIX, Plate XXXVIII, 3). It is of the kind commonly found on the surface of the Yorkshire Wolds.

4th. A flint scraper, 13 feet 2 inches beneath the surface in the fourth trench, just beneath the old surface line (Fig. 3, Plate XXXIX, and Plate XXXVIII, 4); it must have laid there before the rampart was erected.

5th. Close to the last, a well formed flint arrow-head (Fig. 4, Plate XXXIX, and Plate XXXVIII, 5), also on the old surface line, which like the last must have laid on the ground before the rampart was thrown over it.

6th. A small flint axe-head (Fig. 5, Plate XXXIX, and Plate XXXVIII, 6), 1 foot 6 inches beneath the surface in the fifth trench, just beneath the silting, with numerous flint flakes; it must have been put there after the rampart had been formed, and during the occupation of it by the defenders. It appears to be a natural fragment chipped to an edge at the broad end.

7th. A flint scraper (Fig. 6, Plate XXXIX, Plate XXXVIII, 7), 3 feet beneath the surface, and 1 foot 3 inches beneath the last; it must either have worked down from the surface of the top of the rampart, or have been deposited during the construction of it.

8th. A small chipped flint celt (Fig. 7, Plate XXXIX), close to No. 6 (Plate XXXVIII, 8) in the middle of a thick deposit of flint flakes which must have been placed on the top of the rampart after it was formed, the 1 foot 3 inches of superincumbent earth having been formed by surface vegetation which had grown over it.

9th. A half-formed flint arrow-head (Fig. 8, Plate XXXIX, Plate XXXVIII, 9), 3 feet 6 inches beneath the crest of the rampart which had either worked down from the top or been deposited during the formation of the rampart.

Besides these the whole of the interior slope of the rampart beneath the silting, and to within 2 feet of the top of the body

of the rampart, was strewed from top to bottom with flint flakes and artificially formed chips, no less than 827 of which were counted either on the top or on the slope and just beneath or in the bottom of the silting of the rampart. Below this as we dug down into the body of the rampart they died out, not more than 36 being counted in the middle of the rampart, and they became more abundant again on the old surface line, where 71 were counted in the bottom of the trenches on the same level as the scraper and arrow-head above mentioned. We see from this that the flakes must have been formed on the top of the rampart and washed down the slope with the silting during subsequent ages. But whilst excavating the top of the rampart just beneath the crest an important observation was made by the workmen. About 4 o'clock on the 23rd October, three of the men digging into the rampart at about 2 feet beneath the crest, viz., Robson, Gilbank, and Jordan-Bilton, drew my attention to the fact that all the flakes they were finding lay horizontally in the earth. I immediately went to the spot and shortly picked out 10 flakes with my own hands all lying perfectly horizontally in the earth, and unless it can be shown that such flakes have a tendency to become stratified by pressure in the earth of a rampart in after ages they were evidently in the position in which they had fallen on the surface of the rampart as they were thrown down by the people who made them. In order further to verify this important observation an extension of the trench was made along the dyke to the south, I myself observing the position of every flint flake as it lay in the earth; 57 more flakes were here found, every one of which lay horizontally in the ground. Had these flakes belonged to the soil and been brought up and thrown down with it, they would have laid in various positions as the clods of earth containing them chanced to have fallen from the skin or basket of the pre-historic workman. Besides which the fact of finding them on the top of the rampart is alone good evidence on this point, for had they been originally strewed upon the surface of the ground and thrown up with the soil, they would have been found amongst the peaty earth at the bottom of the rampart instead of at the top, the surface soil having been the first removed to form the rampart. Another important observation was made at this time. The flakes, as I have said, were strewed along the old top and interior slope of the rampart, but on extending the cutting beyond the crest towards the outside of the rampart no more flakes were found. This I attribute to the fact of there having been a stockade on the top of the rampart, and the defenders naturally moved about and performed their ordinary avocations behind and not in front of it. It was behind the stockade, therefore, that they carried on

their flint workshops, forming axes and arrow-heads, vestiges of which were found in the deposit of flakes, and throwing down the chips on the surface as they fell off the cores, which flakes in after ages were washed down the inner side of the rampart and not the outside.

We have evidence from this that the defenders of the earthwork used flint, and consequently that the work itself is not later than the bronze period; it is, in fact, of the same age as the tumuli of the Yorkshire Wolds. The considerations of military defence to which I have referred in the former part of this paper, afford reasonable grounds for supposing that all the entrenchments of the wolds may be of the same period, as they certainly are associated with the dyke in a similar method of defence.

And now comes the question, from whence did the people come who invaded the coast at this place? The dykes of Norfolk, Suffolk, and the southern counties of England, all or most of which, I believe, will be found on examination to face inland, have been attributed to the Belgæ. They are at any rate the work of a people coming from the east of France, but it is somewhat high up upon the coast for the invaders of Yorkshire to have come by sea from so great a distance. Flamborough Head being the nearest point to the Danish coast, it is to that quarter we should naturally look for the enemy who made this point his base of operations. But Canon Greenwell, to whom we are indebted for his long and painstaking enquiry into the tumuli of the wolds, has established the fact that the people who buried their dead there were in the early bronze phase of civilisation, nothing but small triangular bronze knife-daggers and celts of the simplest form having been found in their graves. But the archæologists of Denmark have shown that the early bronze age did not exist in Denmark; the art of working in bronze was full-blown when it first entered Denmark, having been nurtured in regions further to the south. If the invaders of Flamborough came from Denmark and were, as we suppose them to be, a bronze-using people, they would have brought with them weapons and implements of a more advanced type than those found in the tumuli of the wolds. It is hardly possible that we should not somewhere or other have found weapons ornamented with the spirals and other patterns which are so universally characteristic of the bronze age of Denmark instead of the simple axe heads and daggers, which in Denmark are rarely found. We are narrowed, therefore, to the opinion that the invaders of Flamborough, if invaders they were, were the same people who landed on the south and south-east coasts of England, or else that these dykes belong to the people of the country, who having imported

the bronze culture from elsewhere, were driven to the coast by another and more powerful race who occupied the interior, and that the defences we are considering were associated with their last occupation of the soil of Yorkshire. Further than this I do not venture to particularise. The excavations and observations I have here recorded have, I trust, it will be admitted, landed us somewhat further on the road to knowledge than we were before. We have seen that, notwithstanding the traditions which connect this place with the Danes, and notwithstanding the prevalence of a Danish element in the population of this country, the traces of which have been so well brought out by Mr. Atkinson in his history of Cleveland, this ground was the scene of military operations of a much earlier people, a people who though ruder in their culture were much their superiors in the art of war, formidable in their means of offence and defence, and in the discipline necessary to construct the great works we have been speaking of.

Description of Plates XXXVII to XXXIX.

Plate XXXVII.

Map of the country near Flamborough Head showing the position of the dykes.

Dykes are marked red. Their position can only be shown approximately on so small a scale.

The site of the excavation is marked with a cross.

Plate XXXVIII.

Section of cutting through the Dane's Dyke, showing the position of the various seams, and of the implements, fragment of pottery, and flakes found in the rampart.

Plate XXXIX.

Fragment of pottery and flint implements found in and about the section of the Dane's Dyke, Flamborough.

Fig. 1. Piece of pot with hole or handle found in Trench 1 at bottom, on old surface line in silting of interior slope.

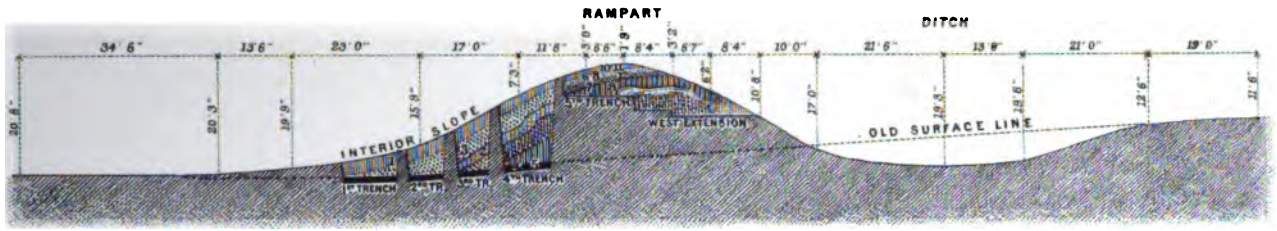
Fig. 2. Scraper or strike-a-light. Found 4 feet 7 inches beneath surface in body of rampart, Trench 3.

Fig. 3. Scraper found 8 inches beneath old surface line, and 13 feet 2 inches beneath surface in Trench 4.

Fig. 4. Arrow-head (broken point) found just below old surface line, Trench 4, south half.

Fig. 5. Hatchet-shaped flint, chipped to an edge at the top.

SECTION OF EARTHWORK COMMONLY CALLED DANE'S DYKE, FLAMBOROUGH.



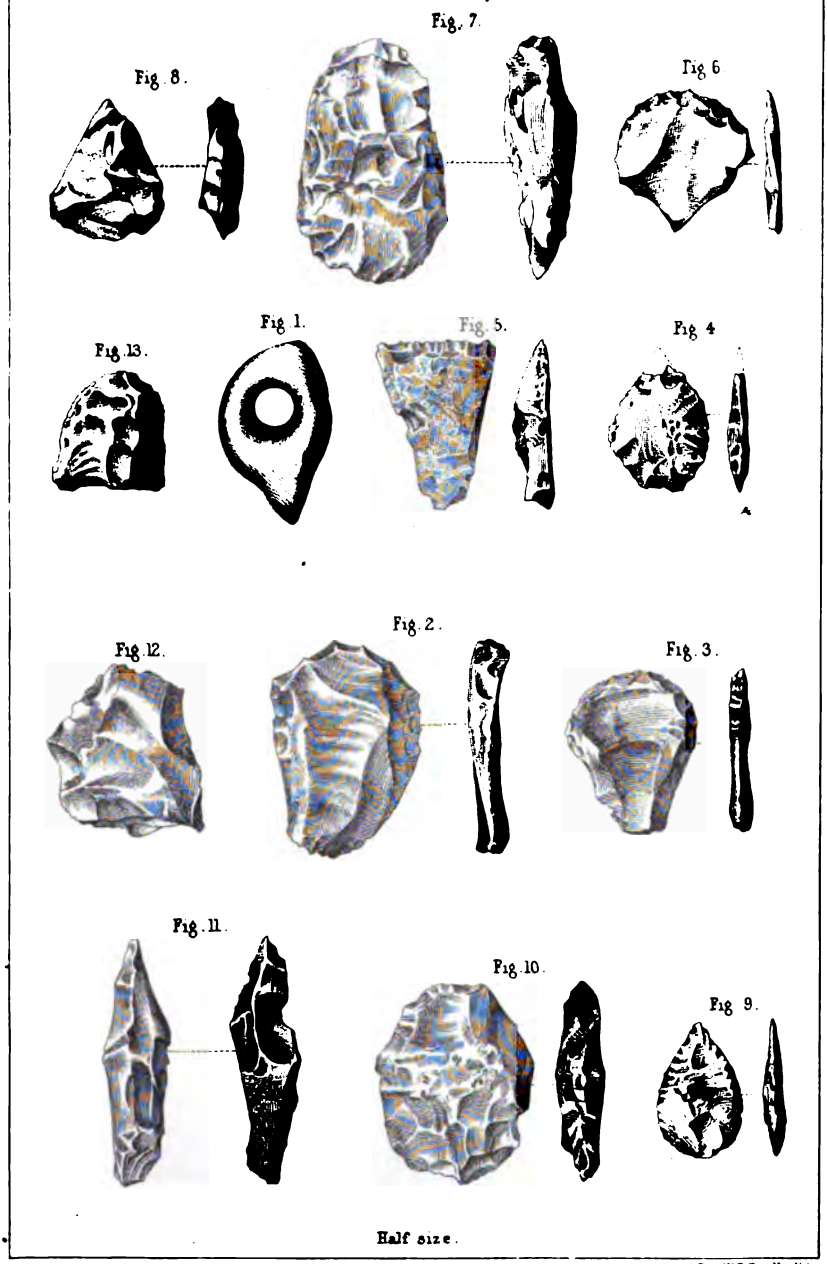
1, FRAGMENT OF POTTERY. Fig.1, Plate 38.
2, CLUSTER OF FLAKES.
3, SCRAPER. Fig 2, Plate 38.
4, SCRAPER. Fig 3, Plate 38.
5, ARROW-HEAD. Fig 4, Plate 38.
6, HATCHET SHAPED FLINT. Fig 5, Plate 38.
7, SCRAPER. Fig.6, Plate 38.
8, CHIPPED CELT. Fig.7, Plate 38.
9, HALF-FORMED ARROW-HEAD. Fig.8, Plate 38.
10, FLINT WORKED TO A POINT. Fig.11, Plate 38.
11, WORKED FLINT. Fig.12, Plate 38.
12, WORKED FLINT. Fig.13, Plate 38.

SILTING
LIGHT BLUE CLAY
LIGHT YELLOW CLAY
DARK BROWN CLAY
DARK CLAY AND BLUE SEAM
BLACK PEATY EARTH
GRAVELLY CLAY
OLD SURFACE LINE
UNDISTURBED CHALK

Scale of Feet.
10 5 0 10 20 30 40 50

J.P. & W.P. Emslie, lith.

Journ. Anthropolog. Inst. Vol. XI. Pl. XXXVII



J P. & W R Emslie, lith

FRAGMENT OF POTTERY AND STONE IMPLEMENTS FOUND IN AND ABOUT THE SECTION OF THE DANE'S DYKE, FLAMBOROUGH.

Found in Trench 5, in body of rampart, 1 foot 6 inches beneath surface.

Fig. 6. Scraper found with the deposit of flakes on the top of body of rampart, in Trench 5, 3 feet beneath surface.

Fig. 7. Chipped celt found at top of Trench 5, 1 foot 3 inches beneath surface.

Fig. 8. Half-formed arrow-head top of Trench 5, 3 feet 6 inches beneath surface.

Fig. 9. Flint arrow-head found close to foot of interior slope of dyke on surface.

Fig. 10. Spear-head found on the surface near foot of interior slope.

Fig. 11. Flint worked to a point. Found at top of Trench 5, 1 foot 3 inches beneath the surface.

Fig. 12. Worked flint found in top clay of body of rampart in Trench 5, 1 foot 2 inches beneath surface.

Fig. 13. Worked flint found with numerous flakes at top of body of rampart in Trench 5, 1 foot 4 inches beneath surface.

APPENDIX.

THE following is a return of the measurements of 90 Flamborough men and women. Flamborough is purely a fishing village, and the race has bred in and in as shown by the returns in which "very pure Flamborough" means a person whose father and mother, and at least two or three grandparents are known to have been Flamborough people; "pure Flamborough" is where the father and mother only are known to be Flamborough people; and "Flamborough" means where one parent only is from Flamborough. None who are not bred in Flamborough are returned. The return includes some men in the village who have either retired from the fishing life or have been employed in selling or collecting fish; had it been confined exclusively to the seafaring portion of the community, or had it included a larger number of those who were at sea at the time, the size of these people would no doubt have been shown larger. As it is they exceed in size the population of the neighbourhood.* The hair of the head, it will be seen, is usually dark, and where not dark it is red; little or no fair hair is returned; the hair of the beard is also dark as a rule. So completely isolated have these people been in past times that it is said before the wolds were cultivated, within the memory of man, when a space of downland intervened between them and the rest of the world, it

* On comparing the average height of these Flamborough fishermen with the returns obtained by the Anthropometric Committee of the British Association, I find that they stand at the top of the list, exceeding all the counties of England hitherto returned, except Yorkshire, which has the same average stature of 5 feet 9 inches.

was even a matter of danger to approach their village; this, of course, is altered now, but still the villagers keep apart. These people show little or no trace of the fair-haired element, which is generally observable in the population of this part of Yorkshire.

I may add that the whole of the measurements were taken by myself personally. The frequent repetition of the same names will be noticed.

1*st April*, 1882.

The reading of General Pitt Rivers' paper was followed by a discussion, in which the Rev. Canon GREENWELL, Professor BOYD DAWKINS, Mr. WOOD, and Mr. PARK HARRISON took part.

FLAMBOROUGH WOMEN, OCTOBER, 1879.

MEASURED BY MAJOR-GENERAL PITT-RIVERS, F.R.S., P.A.I.

No.	Name.	Age.	Profession or Calling.	Race.	Height.	Chest.	Weight.	Shoulders.	Head.			Hair.	Eyes.
									Length	Breadth.	Cephalic Index.		
					Ft. in.	Ft. in.	St. lb.						
1	Anne Nicholson ...	59	Fishwoman	P. Flamborough	5 1	3 5	13 10	broad high	7·3	5·7	73·0	Black	Blue
2	Mary Cross ...	49	Fishwoman	V.P. Flamborough	5 2	3 5	11 0½	broad high	7·3	5·8	79·4	Black	Brown
3	Mary Chadwick ...	55	Fishwoman	P. Flamborough	5 6½	3 2	12 11½	high	7·4	5·9	79·7	Black	Grey
4	Jane Woodhouse ...	48	Fishwoman	Flamborough	5 5½	3 1½	12 0	medium	7·5	5·8	77·3	Light Brown	Blue
5	Anne Oldfield ...	38	Fishwoman	V.P. Flamborough	5 5½	3 2	12 1	broad	7·4	5·8	78·3	Dark Brown	Dark Blue
6	Anne Chadwick ...	53	Fishwoman	Flamborough	5 2	2 11	10 8	broad	7·1	5·5	77·4	Red Brown	Grey
7	Mary Ann Traver ...	35	Fishwoman	V.P. Flamborough	5 7½	3 1	11 8	broad	7·6	6·0	79·0	Black	Brown
8	Anne Beilby ...	42	Fishwoman	V.P. Flamborough	5 8½	2 9	10 8½	medium	7·3	6·0	82·2	Black	Brown
9	Anne Gwin ...	66	Fishwoman	V.P. Flamborough	5 6	3 0	10 8	medium	7·5	5·9	78·6	Dark Brown	Blue
10	Mary White ...	34	Wife of Labourer.	V.P. Flamborough	5 6½	3 1	12 13	broad	7·4	6·1	82·4	Black	Brown
11	Sarah Colley ...	20	Fishwoman	V.P. Flamborough	5 2½	2 9½	9 9½	...	7·3	5·5	75·1	Red	Brown
12	Mary Cross ...	20	Fishwoman	V.P. Flamborough	5 4	2 10	10 10½	...	7·8	6 0	77·0	Brown	Grey
13	Anne Naggs ...	27	Fishwoman	V.P. Flamborough	5 3½	3 2	12 12½	...	7·8	6·1	78·2	Black	Brown
14	Anne Edison ...	67	Wife of Agricultural Labourer.	V.P. Flamborough	5 3	3 3	13 0	...	7·4	5·7	77·0	Formerly Black	Blue
15	Anne Major ...	33	Fishwoman	V.P. Flamborough	5 1	3 1	11 0	...	7·2	5·7	79·1	Black	Dark Brown
16	F. Sawden ...	41	Wife of a Labourer	V.P. Flamborough	5 0	3 1	11 3½	...	7·1	6·0	84·5	Dark Brown	Blue
17	M. Anne Cross ...	30	Fishwoman	V.P. Flamborough	5 3½	3 1	12 3½	...	7·3	6·1	83·6	Dark Brown	Grey
	Totals	714	...	...	90 9	52 5	198·10	...	...	99·6	134·70	...	...
	Averages	42	...	...	5 4	3 1	11·9½	...	...	5·85	79·2	...	...

In the absence of the author, the Director read the following paper:—

ACCOUNT *of the* DISCOVERY *of* SIX ANCIENT DWELLINGS, *found under and near to* BRITISH BARROWS *on the* YORKSHIRE WOLDS. By J. R. MORTIMER, Esq., M.A.I.

[WITH PLATE XL.]

IN this paper I purpose giving a description of six ancient dwellings found under and near to ancient British barrows on the Yorkshire estates of Lord Halifax and Sir Tatton Sykes, Bart., whose courteous permission to explore was obtained through the kindness of Christopher Sykes, Esq., M.P.

Dwelling No. 1 is in connection with barrow No. 110, group 5, of my openings. This barrow is situated on the brow of the south-western edge of the chalk wolds, near to, and overlooking the village of Hanging Grimston.

At the time of exploration (March 28th, 1868), it measured 78 feet east and west by 50 feet north and south, with a central elevation of 3 feet. It was found, in excavating, to have had a deep and wide trench on the north and south sides the whole of its length, but not round the ends; from the material of the trench this barrow, which is of the true long type, had in the main been formed.

The dwelling, as shown on the plan (fig. 1, Plate XL), is situated at the eastern end of the barrow, and is somewhat peculiar in form. Its depth from the base of the mound was 6½ feet, with a floor surface of 9½ feet by 7½ feet, and it was entered by two inclining passages.

The southern one was found to be 24 feet long, 4¾ feet wide at the inner extremity, and 3 feet wide at the outer extremity, and reaching nearly to the side trench of the barrow. The northern one was 27 feet long, 4½ feet wide at the inner extremity, and 4 feet wide at the outer extremity, and was clearly shown to be cut by the northern side trench of the barrow. This feature, being considered a key to the relative ages of the barrow and the cave-dwelling was carefully examined, and it left no doubt on our mind that in this case the construction of the cave-dwelling preceded the excavation of the trench, and consequently was older than the barrow which consisted in the main of the material cast from the trenches.

The filled-in dwelling contained soily matter irregularly mixed with pieces of chalk. At the north end, near the east side, at a depth of 2½ feet from the base of the mound, were

three heaps of the upper and lower jaws of the pig—chiefly of young animals; and at the south end, on the same level, was another heap. These mysterious deposits consisted almost entirely of the upper and lower jaws of at least twenty pigs; while at a depth of 3 feet towards the west side (marked B on the plan) lay the greater portion of a dish-shaped urn (fig. 3, Plate XL), accompanied by bits of burnt wood and a considerable trace of decayed matter, and on the same level, near the south side, lay the femur of a medium-sized person, and close below it was a vertebra of the stag or ox.

In various places, from 3 to 5 feet down, we took the horn of the roebuck, the tang from the antler of the red-deer, and portions of the leg bones and scapula of the same animal, and several teeth of the pig.

It was noticed that many streaks of burnt and decayed wood ran obliquely, and some almost vertically down into the cave, reaching in places to near the bottom. On the bottom rested a dark stratum containing small pieces of burnt wood, and on the west side lay a considerable quantity of decayed matter from which we took the rib of an animal about the size of a rabbit, and clearly observed strips of bone in the last state of decay.

The passages leading from the cave were charged with a like mixture of soil and chalk containing bones and fragments of pot, and showing oblique lines of burnt and black matter similar to those in the cave.

This cave-dwelling must have been covered with a horizontal roof upon which had been heaped soil and chalk, and was probably thatched with heather, in every way similar (except in having two entrance passages), to "Kemp Howe," Cowlam, which I have described in the "Journal of the Anthropological Institute," vol. ix, No. IV.

Its connection with one end of the barrow is also very similar. There is likewise strong evidence that it was destroyed in a similar way, viz., by fire. Such a catastrophe would account for the different lines of black matter by the burning roof giving way and falling in, bringing with it the fragments of pottery, and the numerous animal bones which may from time to time, after meals, have been thrown on and around the low roof of this cave-domicile, even including, probably, the human thigh bone.

In the body of the barrow, about 5 feet from the south-west corner of the cave, at a point (A on fig. 1, Plate XL), were portions of a second dish-shaped urn, much crushed, and lying a few inches above the base of the mound. Ten feet west of the edge of the cave were many fragments of a third dish-formed urn

marked "C," and 3 feet north-north-west of the last lay portions of a fourth dish-shaped urn marked "D" on its side, and within reach of the plough, consequently much damaged. Close under this urn were part of a jaw with teeth of a pig, and at a little distance a portion of the leg bone of the same animal. Under the two last-named urns was an oblong grave pointing north and south 2½ feet deep, and measuring at the bottom 4½ feet by 2 feet. Near the centre of the grave and about half its depth, stood on end the scapula of the pig. There was a considerable quantity of burnt wood from top to bottom, and in the floor of the grave at the south end was a small dish-shaped hole filled entirely with burnt wood, in which we found one small piece of bone, but no relic. All the urns are of a like shallow round-bottomed, dish-shaped type, ranging from 12¼ inches to 13 inches in diameter, and from 5¾ inches to 6 inches in depth. I wish to mention that the potsherds from the cave-dwellings of "Kemp Howe," Cowlam (described in the "Journal of the Anthropological Institute"), belonged to vessels of an almost identical type to those I have just described. I also wish to mention that this form of pottery is rarely found whole in the barrows of this neighbourhood, and that they were probably domestic vessels, and not funeral urns, though some of those I have described in this paper must have served a double purpose, by having been also used as food vases or cinerary urns. This form of pottery is of comparatively rare occurrence. One from West Heslerton Wold, of the same type, and nearly of the same dimensions and colour, is figured by Canon Greenwell in "British Barrows," page 107. At page 143, he describes as domestic pottery, and as having been found in fragments along the bottom of a trench sunk into the chalk rock, and extending 16 feet. This is exceedingly interesting, as these fragments seem to have been found under very similar conditions to some of those I have described.

Dwelling No. 2 is situated close to the south side of the Malton and Driffield Railway, about three miles west of Driffield, and about 30 feet from the eastern margin of tumulus "C. 34," in which were cremated interments. The following is an extract from my note book:—"November, 1871. In testing the ground at the outskirts of the barrow for secondary burials, it was observed that the gravelly sub-soil showed strong traces of fire; and that the gravel in this abnormal condition filled a circular hole. We first proceeded to cut away or empty a vertical half of it, and as we descended, we noticed in the section, lines of burnt wood running from the top towards the bottom in various directions and at different angles. Much dark matter was noticed round the sides, and the gravel there as well as that near

the lines of charcoal previously mentioned was burnt a deep red." Not until after we had completely emptied this somewhat funnel-shaped hole, with its north and south entrance passages, were we quite certain that it had been an underground habitation. Unlike the two previously mentioned dwellings, no fragment of bone or pot was found in it. It greatly resembles the one on Hanging Grimston Wold, having the entrance passages also on the north and south sides, and about the same dimensions, 24 feet long. Its depth was 7 feet 4 inches, diameter at the bottom 5½ feet, and at the top 9½ feet, allowing the sides all round to slope outwards, a very necessary precaution when excavated in loose gravel.

The dark matter on the sides of the interior of the cave and its passages, seemed to suggest that they had been covered with something to exclude the damp and increase its comfort. Whilst the oblique lines of burnt wood, observed in the midst of the burnt gravel filling the cave, indicated that this cave-domicile, like the one on Hanging Grimston Wold, and the one on Cowlam, previously named, had also been destroyed by fire, causing in this case, also, the horizontal beams to give way, and fall into the cave, along with the gravel that covered them. Their undoubted destruction by fire must be supposed to have been more than accidental. Were they destroyed by an enemy, or were they intentionally burnt at the death of their owners, whose bodies were also burnt and interred in the mounds adjoining these dwellings? The latter surmise seems the most reasonable.

Dwelling No. 3 is the remnant of a somewhat simpler kind than the preceding ones. It is situated about 150 feet from the last described dwelling, and on the western or opposite side of Barrow "C. 34." It was a circular excavation in the gravelly sub-soil; measuring 7 feet in diameter and 3½ feet deep. Nothing was found in it, and no trace of fire was anywhere visible.

Dwelling No. 4 resembles the last. It is situated 100 yards west of tumulus "C. 55," in the second field from the south side of the Malton and Driffield Railway; and about one mile east of Wetwang. A very slight rise on the surface led to its discovery. After being carefully cleared out, it measured at the bottom 8 feet 8 inches north and south, and 5½ feet east and west, and the sides all round sloped outwards. Its depth was 4¾ feet, one third of which passed through soily matter, the other portion through rubbly chalk. Rather to the west of the centre of the floor, which consisted of the even surface of an undisturbed stratum of the chalk rock, was the residue of a fire marking the hearth of this ancient pit dwelling. Strewed

round the fireplace were many splinters of animal bones, those of the red deer being most numerous. About 10 inches above the floor were the lower ends of two large humeri of *Bos primigenius* (Wells) measuring $4\frac{6}{10}$ inches across the joint. Unlike the horizontal roofing of the gallery caves, these pit circles were most probably roofed with the branches of trees, placed with their ends all round the sides, meeting together at the top over the centre of the pit; and thatched with grass or heather.

Dwelling No. 5 is of an entirely different type from those previously described. Its remains were completely buried under barrow "23," which is situated on Bishop Wilton Wold, about two miles east of Bishop Wilton Village. During the end of May and the beginning of June, 1868, we carefully turned over nearly the whole of this barrow. On approaching within about 14 feet of the west of the centre, we observed stake and post holes running down into the ground under the barrow; in each of these was placed a small upright stake to assist us in making out their arrangement, which was soon discovered to be in order, and tending towards a circle. On nearing the centre of the barrow we discovered an oval grave (fig. 4, Plate XL) cut 4 feet into the rock, containing the flexed human remains of a large male; in front of his face lay a crushed food-vase, and close to his left shoulder was a perforated axe-hammer of grey stone, with the decayed matter of the handle lying over the upper part of his chest. As the turning over of the barrow proceeded, the post holes were found at about regular distances, forming two circles, one within the other. These two circles measured respectively $21\frac{1}{2}$ feet and 28 feet in diameter. The base of the mound within these circles consisted in the main of clayey matter brought from a distance, which, near the centre, attained to a thickness of 15 inches. The plan on fig. 4, Plate XL, gives the number and arrangement of the stake and post holes, and shows the inner and outer circles to approach each other much nearer on the east than on the west side. Four post holes are also shown placed outside the circle. The stake and post holes varied from 3 inches to 15 inches in diameter, and were found to reach from 1 to 2 feet below the base of the barrow, and in some cases from 2 to 3 feet upwards into the body of the mound. Plaster casts were taken from several of the smaller holes, and though the bottoms of these holes were partly filled with earthy matter, left by the percolation of water during long ages, we were able to make out that some had been pointed and driven into the ground, whilst the larger, and even some of the smaller ones, had been placed in holes dug into the ground, with their thick ends downwards.

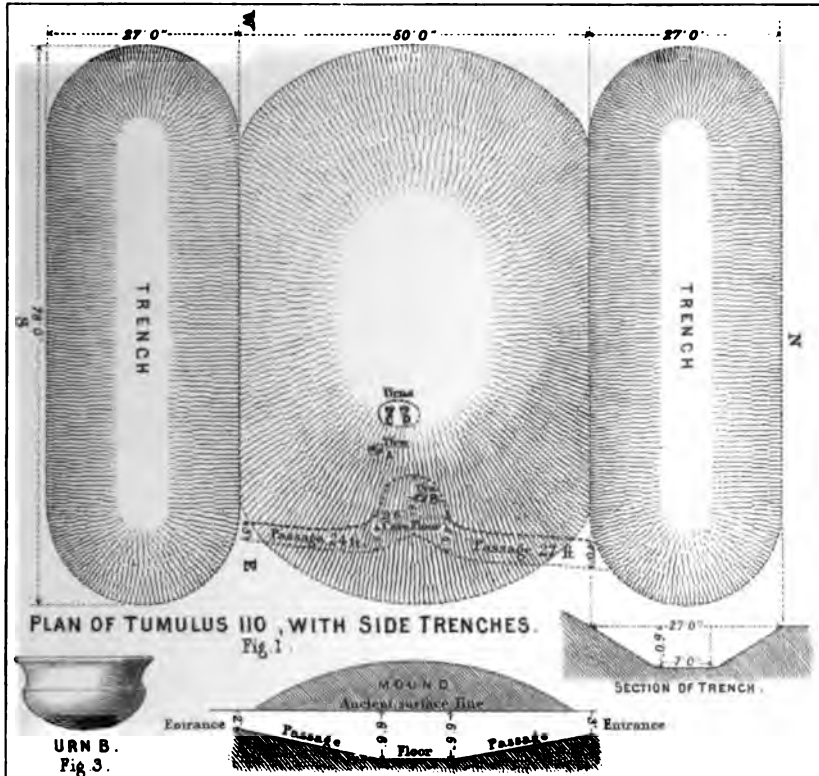
It may now be asked, what was the purpose of the erection of these posts? Those forming the double ring seem to clearly indicate the arrangement of the upright posts of the wattled walls of a circular house bedaubed or plastered with clay, and probably having a conical roof. What purpose the space between the two walls served is uncertain, but it might have been used for storing grain (which will be shown were then grown in the neighbourhood) and other provisions for winter consumption, at a time when, probably, a man's dwelling was the only building he possessed for all purposes. Neither can we be certain as to the use of the four posts outside the circles; they seem too near the outer circle to be the remains of any useful enclosure; but they might well have served as strong pegs by which the exposed roof of a dwelling was stayed and kept in position by ropes made of some fibrous material, which, from numerous impressions observed on cinerary urns and food vases, we know the ancient Britons possessed. Along this breezy high-land some such special support to the roof of such a building must have been indispensable. It seems probable that at the death of its owner a grave was dug in the floor of the dwelling, the walls and roof pushed inwards, and over them the barrow was afterwards reared. Nothing would be more natural to early man than that he should wish to occupy in death the place of his residence or abode during life.

Dwelling No. 6 is about two miles to the east of the last, and stood on ground now covered by tumulus No. 41, which at the time of opening measured 90 feet in diameter and 7½ feet in elevation. Under this barrow was a circular bed of blue muddy-looking clay 15 feet in diameter and about 15 inches thick in the centre, and thinning down outwards. Nearly all round the margin we found vertical stake holes, from 3 to 6 inches in diameter, reaching from 12 to 18 inches into the ground under the barrow; and in three places 5 feet upwards into the body of the mound. Preserved in this circular bed of impervious clay were many bits of small branches of the oak, ash, maple, and other trees, lying horizontally; while many other pieces had left their impressions in and beneath the clay. Probably these were the remains of the wattled sides of the hut which had been covered with the circular bed of clay, in which they were found preserved. One piece of oak about 2 feet long and 2½ inches thick had a cross incision, made seemingly by a metal saw, extending 1½ inch into it; and its thick end shows two oblique cuts produced by having been cut from its roots, with a tolerably keen-edged tool, probably of metal. We also took from this bed of clay many greatly decayed portions of the horns of the red deer. In testing the ground under this clay,

no grave could be found; but round its circumference the soil and rock, to a depth of 2 to 3 feet, and from 18 inches to 2 feet in width, was found to be stained black, as if from the droppings of the eave of a circular hut, which at times were discoloured with the decayed thatch of the roof. And what is very probable, this thatch may have been, even in those early times, the straw of wheat, as I possess the carbonized grains of this cereal, from the primary interment of an undoubted British barrow. A few feet from this dwelling, on the side towards the rising sun, was a grave cut into the chalk rock, containing the flexed body of a young and small person, accompanied by a delicately formed flint knife, lying close to the right arm, and a large and finely ornamented food vase, standing by the right side of the head. Though in this case the interment had not been made in the floor of the dwelling, but close to it, the dwelling had been crushed down at the time of interment as in the previous case, and both carefully covered with the barrow. The two have been alike protected and preserved to our time, and show there is but a step between the habitation of the living and the house of the dead.

Description of Plate XL.

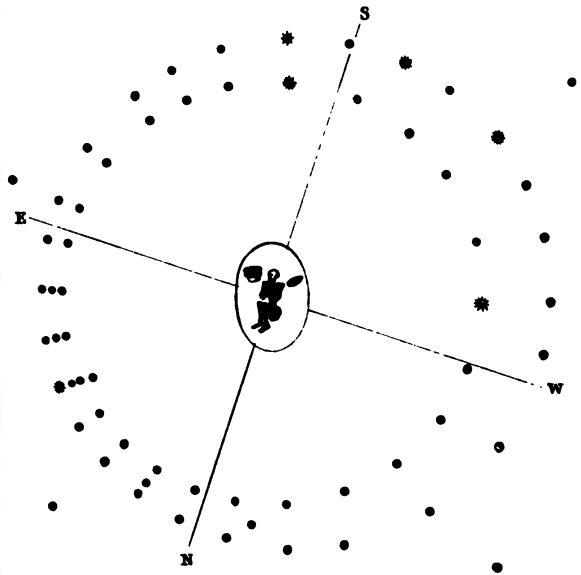
Fig. 1. Plan of tumulus No. 110, with side trenches showing position of the dwelling No. 1.
Fig. 2. Section of the cave-dwelling in tumulus No. 110.
Fig. 3. Vessel of pottery found in the dwelling No. 1, at the spot marked B in fig. 1.
Fig. 4. Plan of hut-circle, with interment, under tumulus No. 23.



PLAN OF TUMULUS 110, WITH SIDE TRENCHES.
Fig. 1.

URN B.
Fig. 3.

SECTION OF CAVE DWELLING IN TUMULUS 110.
Fig. 2.



Diameter of Inner Circle 21½ feet.
„ „ Outer Circle 28 feet.

HUT CIRCLE UNDER TUMULUS 23.
Fig. 4.

Journ. Anthropolog. Inst. Vol. XI. P. II.

J.P. & W.R. Emslie, lith. London

ANNUAL GENERAL MEETING.

JANUARY 24TH, 1882.

MAJOR-GENERAL PITT RIVERS, F.R.S., *President, in the Chair.*

The notice convening the meeting was read.

The minutes of the last Anniversary Meeting were read and confirmed.

The Treasurer's Financial Statement for the year ended 31st December, 1881, was read and adopted on the motion of Mr. HYDE CLARKE, seconded by Mr. BOUVERIE PUSEY.

Mr. HYDE CLARKE, in moving the adoption of the Report, said that the favourable nature of the Treasurer's statement was greatly due to the liberal support which the Institute had received in consequence of the powerful appeal which had been made in its favour by Professor Flower at the British Association at York. Their old friend, Dr. Muirhead, of Cambuslang, a zealous anthropologist, at once gave a cheque for the handsome sum of one hundred pounds, which had been applied, in conformity with his desire, to the advancement of the Journal. At the same time donations had been given by Mr. Herbert Spencer, Mrs. Rose Mary Crawshay, and Mr. Clerk. Moreover, several gentlemen had also enrolled themselves as Members of the Institute, in response to Professor Flower's appeal.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Receipts and Payments for the Year ending 31*st December*, 1881.

RECEIPTS.

	£	s.	d.	£	s.	d.
BALANCES, January 1st, 1880:						
At Bankers'	99	17	6			
In Office	3	1	6½			
Due for bookcases and publications sold	7	1	6			
				110	0	6½
SUBSCRIPTIONS:						
Paid to Robarts and Co.	64	1	0			
" " due 1880	2	2	0			
" Collector	357	0	0			
" " Life Compositions	68	0	0			
" " due 1880	29	8	0			
" " in advance	28	7	0			
				543	18	0
DONATIONS				118	0	0
SALE OF ETHNOLOGICAL OBJECTS				50	0	0
SALE OF PUBLICATIONS:						
Messrs. Trübner and Co.	69	17	5			
Messrs. Longmans and Co.	1	6	2			
Office:						
Journals	10	11	0			
Other Publications	5	14	8			
				87	8	10

PAYMENTS.

	£	s.	d.	£	s.	d.
RENT, one year to September, 1881				130	0	0
PRINTING:						
Journal, Nos. 32, 33, 34	146	17	5			
Miscellaneous	33	6	6			
				180	3	11
LITHOGRAPHY, &c.				46	17	8
SALARIES AND COLLECTOR'S COMMISSION				168	10	5
POSTAGE AND STAMPS:						
Journal	14	5	9			
Letters and Post Cards	15	12	1			
Book Parcels and Circulars	1	16	8			
				31	14	1
ADVERTISING				4	6	8
PURCHASE OF BOOKS FOR LIBRARY				14	8	0
OFFICE:						
Stationery and Books	16	0	4			
Receipt Stamps, &c.	2	4	1			
Book Binding	1	17	11			
Insurance	0	18	0			
Carriage of Parcels	4	1	10½			
Carpenter	20	7	0			
Miscellaneous	2	13	2			
				48	2	4½

Dividends on Investments:			
Half year on £1,060 18*s.*, 3½ Per Cent. Stock	17 15 2		
„ „ £1,060 1*s.* 10*d.* „ „	18 0 0		
		35 15 2	
		£940 2 6½	

Audited and found correct, January 19th, 1882.

(Signed) GEORGE M. ATKINSON.
M. J. WALHOUSE.

House:		
Ayres, gratuity for 1880	15 0 0	
„ coals and lights	4 10 6	
„ assistance, &c.	2 18 9	
„ refreshments	21 0 0	
		43 9 3
Balances:		
Purchase of £19 8*s.* 10*d.* 3½ Per Cent. Stock		21 0 0
At Bankers'	250 17 8	
In Office	0 17 11	
		251 15 7
		£940 2 6½

APPROXIMATE.

Liabilities.	£ *s.* *d.*	**Assets.**	£ *s.* *d.*	£ *s.* *d.*
Printing	70 0 0	Balance in Bank, 1st January	250 17 8	
House	27 0 0	„ „ Office	0 17 11	
Lithography	10 0 0			251 15 7
Rent	32 10 0	Subscriptions in arrear		872 15 0
		£1,060 1*s.* 10*d.*, Metropolitan Consolidated Stock at 106		1,123 14 0
		Estimated value of Stock		2,000 0 0
	£139 10 0			£3,748 4 7

Treasurer's Report.

In consequence of Professor Flower's energetic appeal for the support of the Institute at the York meeting of the British Association, £113 was received as donations. This sum was made up as follows: Dr. Muirhead, £100; Herbert Spencer, Esq., F.R.S., £5; Mrs. R. M. Crawshay, £5; and the late W. H. Clerk, Esq., £3.

We have had three life compounders, and of their compositions £21 has been invested, and another £21 is to be invested at an early opportunity.

There is a falling off in the amount received by the sale of our publications, but that may be partly due to our Journals having been unavoidably rather late in publication, and we hope that this year that will be rectified. The dividends on the money invested is £1 0*s.* 8*d.* more than the previous year. £50 was received by the sale of Ethnological objects, which sum will be appropriated to the library; we have purchased a few volumes, and £36 is still available for that purpose. Our expenses have been about £40 less. In consequence of the printers and lithographers not having sent in their accounts for the last Journal until a few days ago, they do not appear in the balance sheet. Our balance in hand is £251 15*s.* 7*d.*, from which we must therefore deduct £67 3*s.* 10*d.*, the amount of the printers' and lithographers' bill, and £21 to be invested, which will leave an available balance in our favour of £184 11*s.* 9*d.* In addition to this £114 9*s.* is owing for arrears of subscriptions for the past two years. The present value of our £1,060 1*s.* 10*d.* Metropolitan 3½ per Cents. is £1,123 13*s.* 11*d.*

(Signed) F. G. H. Price.

The President declared the ballot open, and Mr. Holt and Mr. Killick were appointed scrutineers.

Mr. F. W. Rudler, Director, read the following report:—

Report of the Council of the Anthropological Institute of Great Britain and Ireland for 1881.

During the past year the Institute has held fourteen ordinary meetings, in addition to the Anniversary Meeting. At the ordinary meetings the following communications were read:

1. "On Head Measurements." By F. F. Tuckett, Esq.
2. "The Stone Age in South Africa." By W. D. Gooch, Esq.
3. "Notes on two Stone Circles in Shropshire." By A. L. Lewis, Esq.
4. "Surgery and Superstition in Neolithic Times." By Miss A. W. Buckland.
5. "Remarks on Arrow-poisons prepared by some Tribes of North American Indians." By W. J. Hoffman, Esq., M.D.
6. "The Gauchos of San Jorge, Central Uruguay." By David Christison, Esq., M.D.
7. "Note on Assam Dwellings." By S. E. Peal, Esq.
8. "A Short Account of the Wild Tribes inhabiting the so-called Naga Hills on our North-Eastern Frontier of India," Part I. By Lieut.-Colonel R. G. Woodthorpe, R.E.
9. "On Artificially Deformed Skulls from Mallakolo." By Prof. W. H. Flower, F.R.S.
10. "The Ethnological Relations of the Gypsies." By Joseph Lucas, Esq.
11. "Remarks on some Archaic Structures in Somersetshire and Dorsetshire." By A. L. Lewis, Esq.
12. "On a New Instrument for determining the Facial Angle." By G. M. Atkinson, Esq.
13. "Thomas of Aquinum and Anthropology." By the Rev. W. S. Caiger, B.A.
14. "On some Naga Skulls." By Professor G. Dancer Thane.
15. "On the Wild Tribes of the Naga Hills," Part II. By Lieut.-Col. R. G. Woodthorpe, R.E.
16. "On some Bone Necklaces from the Andaman Islands." By Allen Thomson, Esq., M.D., F.R.S.
17. "On the Arts of the Andamanese and Nicobarese." By E. H. Man, Esq.
18. "On the discovery of Flint Implements in the gravel of the Nile Valley, near Thebes." By Major-General A. Pitt Rivers, F.R.S., *President*.
19. "On the Human Fossil at Nice." By Alfred Tylor, Esq., F.G.S.
20. "On Sepulchral Remains at Rathdown, Co. Wicklow." By Gerrard A. Kinahan, Esq.
21. "Notes on some Excavations made in Tumuli, near Copiapó, Chili, in June, 1880." By J. H. Madge, Esq.
22. "On some Stone Implements from British Guiana." By F. E. im Thurn, Esq.
23. "The Laws affecting the relations between Civilized and Savage Life, as bearing upon the dealings of Colonists with Aborigines." By the Right Hon. Sir H. Bartle Frere, Bart., G.C.B., G.C.S.I., F.R.S.
24. "On the Animism of the Indians of British Guiana." By E. F. im Thurn, Esq.
25. "Notes on the Asiatic relations of Polynesian Culture." By E. B. Tylor, Esq., D.C.L., F.R.S.
26. "Notes on the affinity of the Melanesian, Malay, and Polynesian Languages." By the Rev. R. H. Codrington.
27. "Fijian Riddles." By the Rev. Lorimer Fison.
28. "On the Stature of the Inhabitants of Hungary." By Dr. J. Beddoe, F.R.S.
29. "Some Vestiges of Girl Sacrifices, Jar Burial, and Contracted Interments in India and the East." By M. J. Walhouse, Esq., F.R.A.S.
30. "Origin and Primitive Home of the Semites." By G. Bertin, Esq.

It is satisfactory to report that during the year thirty-seven Ordinary Members, one Corresponding Member, and three Honorary Members have been elected.

The former and present state of the Institute with regard to the number of Members are shown in the following Table:—

	Honorary.	Compounders.	Annual Subscribers.	Total.
January 1st, 1881 ..	48	90	302	440
Since elected	+3	+3	+34	40
Since deceased ..	..	−2	−8	−10
Since retired	..	..	−15	−15
January 1st, 1882 ..	51	91	313	455

There has thus been a net gain of eleven Annual Subscribing Members, one Compounder, and three Honorary Members.

The Council regrets to report that the Institute has lost through death: Mr. J. Bonsor, Dr. J. Barnard Davis, F.R.S., Mr. R. T. Gore, Mr. J. Jeremiah, Jun., Mr. J. C. Joad, Lord Ormathwaite, Colonel J. W. Willoughby Osborne, C.B., Mr. F. Ouvry, V.P.S.A., Professor G. Rolleston, F.R.S., and Mr. D. J. Rutherford.

Among these names, there are unfortunately those of two Anthropologists who have been so intimately identified with the progress of the science in this country that their loss demands more than a passing notice.

Dr. J. Barnard Davis was one of our oldest members, and before the formation of the Institute had been a fellow of both the pre-existing societies. He was elected into the Ethnological Society as far back as 1856, and into the Anthropological Society at its commencement in 1863. The unrivalled collection of crania, skeletons and other objects of anthropological interest which he steadily accumulated during his residence for many years in the Staffordshire Potteries, forms a striking testimony to the enthusiasm with which he applied himself to the study of physical anthropology. His "Thesaurus Craniorum," with its supplementary volume, and the "Crania Britannica," which he published in conjunction with the late Dr. Thurnam, may be reckoned among the most important contributions to anthropological science ever published in this country. In addition however, to these works, he was the author of several valuable memoirs, such as his papers on the osteology of the Tasmanians,

published at Haarlem, and his memoir "On Weight of the Brain in different Races," which appeared in the "Philosophical Transactions" for 1868. To our own Journal, and to the publications of the pre-existing societies Dr. Barnard Davis was also an esteemed contributor. It is a source of congratulation to the anthropologists of this country that his magnificent collection has been acquired by the Royal College of Surgeons, and that, being thus brought to the metropolis, and placed in the hands of Professor Flower, its value will henceforth be greatly enhanced.

Anthropological Science has also suffered during the last year a heavy loss by the death of Professor GEORGE ROLLESTON. In 1860, the year in which he was elected to the Linacre Professorship of Anatomy and Physiology at Oxford, he joined the Ethnological Society, and thence passed to the Institute on its formation as one of the original members. The Journal of the Institute contains several characteristic papers from Professor Rolleston's pen, especially those "On the People of the Long Barrow Period," "On the Human Remains at Cissbury," and "On Excavations at Sigwell." Probably his most important contribution to anthropology was contained in the well-written work on "British Barrows," prepared in conjunction with our respected member Canon Greenwell. But the value of Professor Rolleston's services to anthropology is by no means to be measured by the number of his written contributions. Always burdened by the pressure of official duties, he could command but scant leisure for original investigation or for the preparation of papers. But whenever he was able to attend our evening meetings, he never failed to freshen our discussions by his singular fluency of speech, and by his extraordinary range of general knowledge. At the Bristol Meeting of the British Association in 1875, he presided over the Department of Anthropology, and not only delivered an address of great value, but conducted the whole proceedings with his accustomed felicity. Professor Rolleston's death is the more to be deplored inasmuch as it occurred at the comparatively early age of fifty-two, at a time of life when hope was entertained of much future work, especially in the domain of archæological anatomy, for which he was peculiarly fitted by a rare combination of science and scholarship.

Mr. FREDERIC OUVRY, whose death the Institute, in common with so many other Societies, has had to deplore, joined us in 1868. His engagements did not permit of his frequent appearance at our meetings, but he is known to have taken a lively interest in the objects of the Institute.

Among the less known members whose loss we have to record, mention should be made of Mr. JOHN JEREMIAH, a young man of much promise, who a few years ago, before he was attacked by pulmonary disease, was a regular attendant at our evening meetings, and, as the pages of our Journal testify, a frequent contributor to our discussions.

Soon after the last Anniversary Meeting, the Council had the misfortune to lose the services of Mr. E. W. BRABROOK, who was induced, under medical advice, to resign the Directorship. Mr. Brabrook had performed the duties of Director of the Institute from the year 1872, when he succeeded Mr. C. Staniland Wake; but it should not be forgotten that he had previously acted for several years in a similar capacity in relation to the Anthropological Society. Throughout this long tenure of office, Mr. Brabrook had conducted the business of the Institute with such ability, energy, and courtesy as to earn for himself the high esteem of successive Presidents and Councils, as well as of the general body of members. It is sincerely hoped that Mr. Brabrook's retirement from participation in the active work of the Institute may be only temporary.

The Council had also to accept, with much regret, the resignation of Mr. J. E. PRICE, who was compelled, by pressure of archæological work, to retire from the Directorship at the close of last session. Mr. Price had for several years taken sole charge of the Journal of the Institute, and had devoted to this work a great amount of time and labour. Both to him and to Mr. Brabrook the Council desires to record its high appreciation of their honorary services.

The following are the names of the donors to the Library and Museum during the past year:—

J. W. Powell, Esq.; M. Emile Cartailhac; Prof. Enrico Morselli; M. Le Bon. J. de Baye; Dr. E. B. Tylor; Denis G. Zesas; James Bonwick, Esq.; Dr. W. Sharpe; F. W. Putnam, Esq.; Lieut. R. C. Temple; Dr. E. H. Knight; Prof. T. R. Jones; Dr. J. Evans; Lucien Carr, Esq.; J. Park Harrison, Esq.; Lieut.-Col. R. G. Woodthorpe; G. H. Boehmer, Esq.; James Dawson, Esq.; A. R. Grote, Esq.; Dr. D. J. Valentí y Vivó; Dr. Emil Holub; Hodder M. Westropp, Esq.; Dr. Dally; John Cole, Esq.; Dr. A. Weisbach; Prof. Schaaffhausen; Surgeon-Major H. W. Bellew; Prof. Cyrus Thomas; Dr. J. C. Southall; Miss A. W. Buckland; Sandford Fleming, Esq.; Signor Giustiniano Nicolucci; the Rev. F. A. Allen; Prof. R. Virchow; T. Kerslake, Esq.; G. Gould, Esq.; Sir J. Lubbock; Dr. Kollman; W. H. Dall, Esq.; Dr. Hoffman; A. R. Grote, Esq.; Alexander Ramsay, Esq.; C. Rau, Esq.; Clarence King, Esq.; Signor Paolo Mantegazza; Rev. C. Voysey; Royal Geographical Society; Society of Arts; Asiatic Society of Bengal; Anthropological Society of Berlin;

Société Impériale des Naturalistes de Moscou; Société de Borda Dax; German Anthropological Society; Vereins für Erdkunde zu Halle; Institut Géographique International; Geologists' Association; British Association; Royal United Service Institution; Royal Asiatic Society; Philosophical Society of Glasgow; Royal Historical and Archæological Association of Ireland; Royal Society; American Philosophical Society; Government of New Zealand; Sociedade de Geographia de Lisboa; Royal Geological Society of Ireland; Royal Society of New South Wales; Asiatic Society of Japan; L'Academie Royale de Copenhague; Academie Impériale de St. Petersbourg; Epping Forest and County of Essex Naturalists' Field Club; Koninklijke Akademie van Wetenschappen, Amsterdam; Société Impériale Russe de Géographie; Spanish Anthropological Society; Academia Nacional de Ciencias de la Republica Argentina; National Association for the Promotion of Social Science; Royal Institution of Cornwall; Académie Royale des Sciences de Belgique; Society of Antiquaries; K. K. Geographische Gesellschaft, Wien; Literary and Historical Society of Quebec; Anthropologische Gesellschaft, Wien; Museu Nacional de Rio de Janeiro; Magyar Tudományos Akadémia; Society of Biblical Archæology; Literary and Philosophical Society of Liverpool; New Zealand Institute; Société Impériale des Amis d'Histoire Naturelle; Société d'Anthropologie de Paris; Smithsonian Institution; Royal Society of Tasmania; Vereins für Erdkunde zu Metz; Royal Colonial Institute; Lewisham and Blackheath Scientific Association; Leeds Philosophical and Literary Society; Ceylon Branch of the Royal Asiatic Society; Royal Society of Edinburgh; Berwickshire Naturalists' Field Club; Government of Madras; Trustees of the Peabody Museum; Kaiserliche Leopoldino-Carolinische Deutsche Akademie de Naturforscher; Devonshire Association for the Advancement of Science, Literature, and Art; Canadian Institute; the Government of the Punjab; Birmingham Philosophical Society; State Board of Health, Massachusetts; Oberhessische Gesellschaft für Natur-und Heilkunde; Public Free Libraries Committee of the City of Manchester; Kaiserliche Akademie der Wissenschaften, Wien; North China Branch of the Royal Asiatic Society; R. Accademia dei Lincei; Librarian of the Grey Collection, South African Public Library, Cape Town.

The Editor "Nature;" The Editor "Athenæum;" The Editor "Revue Scientifique;" The Editor "Materiaux pour l'histoire de l'homme;" The Editor "Revue Internationale;" The Editor "Correspondenz Blatt;" The Editor "Journal of Mental Science;" The Editor "Education;" The Editor "Kansas City Review of Science and Industry;" The Editor "Revue d'anthropologie;" The Editor "Chrysanthemum;" The Editor "Scientific Roll;" The Editor "Revista di Filosofia Scientifica;" The Editor "Bibliographer;" The Editor "Knowledge."

On the motion of the PRESIDENT, seconded by Mr. HEYWOOD, the report was unanimously adopted.

The President then delivered the following address:—

ANNIVERSARY ADDRESS *to the* ANTHROPOLOGICAL INSTITUTE *of* GREAT BRITAIN *and* IRELAND. By Major-General A. PITT-RIVERS, F.R.S., *President.*

HAVING for the second time had the honour of being elected President of this Institute, it now becomes my duty, in accordance with previous custom, to review the work of the past year. In so doing I shall adhere to the classification of subjects followed by Mr. Evans and myself on former occasions.

DESCRIPTIVE ETHNOLOGY—*Five Papers.*

1. "On Platform Dwellings in Assam," by S. E. Peal, Esq. Building on piles is a racial custom peculiar to all the hill tribes except the Khasias. When these hill-tribes migrate to the plains, they still continue to use them there for centuries. The Aryans and semi-Aryans of the desert do not use them. The mode of building may vary slightly amongst different tribes. This adds to our knowledge of the geographical distribution of the custom in question, a study to be more fully worked out in the future. It is not likely that this custom any more than other customs will be found in its widest range to be purely racial. It has a distribution of its own, but we have already evidence that in this part of the world its area of existence is more or less continuous, ranging over a wide region to the north and south of Assam.

2. "On the Wild Tribes of the Naga Hills," by Lieutenant-Colonel Woodthorpe. The Nagas are a large and powerfully built people, averaging as much as 5 feet 9 inches in height, and are divided into two sects, one of which is distinguished by wearing a kilt consisting of a strip of dark blue cloth eighteen inches wide. Personal ornament may here be traced to its origin. Colonel Woodthorpe observes that all their personal decorations have a defensive purpose. As a consequence of this it appears that the women are less highly

decorated than the men. The practice of carrying two spears, the one to be thrown, and the other used at close quarters, is one which appears to have prevailed in many parts of the world, conspicuously so amongst the Romans. Such an expedient is so obviously dictated by considerations of safety that one need hardly be at the pains of tracing its distribution. Defence by means of pit-falls is also a common expedient of early times, while on the other hand, the use of "rangies" or "panjies," as they are here called, though likewise of general use, appears especially to belong to the parts of the world we are considering, being in common use among the Dyaks on the south, and the Chinese on the East; the use of long shields also connects them with people of the Indian Archipelago. In their agricultural appliances the use of terraces reminds one of the existence of terraces so common in England and elsewhere in prehistoric times. Most interesting also is it to compare the wooden sledge, of which an illustration is given in the paper, with precisely similar ones which I have seen used in Sweden, and for a similar purpose of removing large stones. The antiquity of this precise form of sledge is attested by the finding of one of them in a tumulus in Denmark; it is now in the Museum at Copenhagen, and consists simply of the fork formed by the trunk of a tree and two branches.

On the front walls of their houses, of which an illustration of one is given in the paper, the heads and horns of animals are carved in bas-relief. This appears to me to be a survival of a custom widely prevalent in this region of hanging in the front of the house the heads of animals which have been eaten in feasts in order to attest the wealth and hospitality of the owner. Such a custom is mentioned by Mr. Man in the Andamans, and by Dr. Comrie in New Guinea, and its existence in intervening countries will no doubt be traced now that attention has been drawn to it. The connection of these carvings amongst the Nagas, with the placing of skulls and horns in the Andaman Islands and in New Guinea, is shown by a statement of Colonel Woodthorpe's in his second paper describing the non-kilted

Nagas, in which he says that these or similar carvings are put up on the occasion of the owner giving a feast, and thereby proclaiming himself a man of substance. The custom of shaving the head is worthy of notice. If the Nagas are to be regarded as a centre of fashion in this respect, the ladies of the Andamans may be considered perfectly Parisian in their costume.

In a second paper Colonel Woodthorpe describes the non-kilted Nagas. Amongst other points of interest the very slight and gradual changes spoken of as taking place in the tools and weapons of these people as you pass from tribe to tribe are well worthy of notice. Illustrations of these slight changes of custom and form would be very interesting, as it is by such means that we are able to trace the continuous development of ideas.

3. David Christison, M.D., "On the Gauchos of San Jorge." Although the author does not appear to have had the advantage of possessing a copy of our anthropological "Notes and Queries," and his observations consequently have not been anthropologically conducted, he adds many points of interest to our knowledge of these people. The Gauchos are an entirely mixed race, being composed of Negroes, Brazilians, and Spaniards, as well as Charruas. Their mode of life is rather Indian than European. They live almost entirely on animal food, and they eat but once a day, at sunset. They are well developed men, with capacious chests and muscular limbs: they pass their time chiefly on horseback, and the men retain the remarkable power of vision so common to the aborigines of America, and an instinct for finding their way. Their only manufacture is cutting and plaiting various articles of hide into articles of horse-gear. They speak Spanish. Their games are all of a gambling nature; music and dancing, although unknown originally to Indians of these parts, is practised by them. Their dead in remote situations are exposed Indian fashion on the lonely Campas. The Gauchos are tolerably free from superstition: their indifference to life is such that the "gusto de malar," or love of manslaughter, is described as being common amongst them, and in some places nearly half the young Gauchos are believed to have died a

violent death. Their dogs serve as scavengers (like those of the Turks), and although showing deference to their nominal masters evince no signs of affection.

4. "On Some Vestiges of Girl-Sacrifices, Jar-Burial, and Contracted Interments in India and the East," by M. J. Walhouse. After giving a description from personal observation on the custom of urn burial, and the sacrifice of virgins, a practice connected with the doctrine of atonement in various parts of the world, Mr. Walhouse proceeds to trace the distribution of this and allied customs elsewhere. The subject of urn burial is well worthy of being studied in all its ramifications and varieties. The practice of reversing the urn, and placing it mouth downwards, referred to by Mr. Walhouse, is one to which allusion has already been made in other papers read during the present year. Recently in excavations I have myself come upon evidence of what in this country appears to have been the survival of the practice of urn burial. In Dorsetshire it appears to have been the custom on certain occasions in British tumuli, whether as memorials or for some other purposes, to bury an urn alone without any vestige of human bones burnt or otherwise. On other occasions I have ascertained that fragments only of an urn have been buried with the remains of the dead. An examination of the fragments made it certain that pieces only were put in to mark the spot, much in the same way that the Romans were known to have buried shards of pottery to mark the sites of their termini; and the Saxons, also, did the same thing in their graves.

5. "Further Remarks on the Arts of the Andamanese and Nicobarese," by Mr. E. H. Man—in which he makes some additions to the valuable paper that he has contributed to the Institute on a former occasion, correcting many errors that have been made by former writers, and replying in great detail to some queries put by me in a paper published in the Journal of the Institute some time ago. The great value of these additions to our knowledge of the arts of the Andamanese will not perhaps be fully understood by the mere reader of our Journal,

but will be duly appreciated by the scientific student of the arts of life, for by means of them and of like carefully studied communications from other sources, we are made acquainted not only with the arts and customs which *exist* amongst the people described, but also we are informed upon the best authority that certain other arts and customs do *not exist*. This is of the greatest value to those who study the distribution and development of the arts of life. The anthropologist who is dependent on the ordinary accounts of travellers for his information is often sorely puzzled to determine whether silence upon certain points arises from non-existence, or merely from insufficient observation, and he hesitates to exclude such places from the area of distribution of the particular matter that he may happen to be writing about, upon negative evidence alone. When, however, a writer, with the little volume of our "Notes and Queries" in his possession, and with the special opportunities that Mr. Man has had, puts himself to the trouble of investigating and replying almost categorically to the questions contained in it, his evidence becomes of the very greatest anthropological importance. It is this which characterises in a special manner the value of Mr. Man's communications. Not until the same course has been followed by a greater number of travellers will the anthropological generaliser feel that he is treading upon sure ground, and that his deductions are no longer liable to be upset by future explorers.

Deductive Ethnology.—*One Paper.*

"Origin and Primitive Home of the Semites," by G. Bertin, Esq. This paper was not put into type before this address was printed.

Prehistoric Archæology.—*Ten Papers.*

1. Mr. A. L. Lewis gives a description of several stone circles near Minsterley, in Shropshire. Without committing himself to any theory, he draws attention to the circumstance that two of these monuments form a direct line with the point

of Stapeley Hill, their bearing being 40° north of east, a coincidence for which he believes that parallels may be found in several other prehistoric monuments which he mentions. Following in the line of investigation pursued by Mr. Flinders Petrie, there can be no doubt that a useful purpose is served by thus directing attention to points of this nature when they occur. Mr. Lewis'.caution, however, is by no means uncalled for, and the importance of noticing the natural features of the ground which may have influenced the position of these and similar monuments, cannot be too strongly insisted upon. In the case of hut-circles, special notice should be taken of the not infrequent cases in which, for facility of drainage, the opening is made to face down-hill.

2. "Remarks on Archaic Structures in Somersetshire and Dorsetshire," by the same author. In speaking of these structures, Mr. Lewis again states that while he has little sympathy for the elaborate astronomical speculations of some writers, he firmly believes them to be connected with the worship of the sun. There are outlying stones in connection with stone circles in many different parts of England which have very nearly the same bearing from the circles. These coincidences, he believes, are not undesigned. They must have been so placed for some reason which it would be for the advancement of Science to find out. I need hardly say that in his endeavours to ascertain the intention of such coincidences Mr. Lewis has the good wishes of this Society. A full consideration of the subject of course demands that cases in which the facts fail to support the theory of sun-worship should be fairly balanced with those in which the coincidences occur. Referring to some remarks of Lord Talbot de Malahide on this paper, in which he speaks of the giant at Cerne (not Carne, as it is mis-spelt in the paper), I may mention that as this monument and the earthworks adjoining it happen to be my property, my intention is this year, if time and health permit, to make excavations at that place, in which I hope to receive the valuable assistance of Mr. Lewis and other members of this Society.

3. "The Stone Age of South Africa," by Mr. W. D. Gooch. It would be impossible for me in the limited space allotted to me to give a résumé of this valuable, and so far as existing knowlege extends, exhaustive paper. I must therefore pass over many interesting points relating to the form and construction of the implements, and proceed to notice what appears to me to be the main point of novelty in the paper, viz.: the palæolithic period of South Africa. For some years past we have received from the Cape chipped implements of tongue-shaped form, corresponding to those found in the river-gravels of Europe. But for obvious reasons anthropologists have declined to accept evidence of the existence of a palæolithic age derived exclusively from the forms of tools or weapons. Although in nearly all countries in which the earliest specimens of human art have been found, they have assumed like forms, yet we know from the more carefully studied prehistoric remains of our own country, that the earliest forms of implements have, under certain circumstances, survived amongst later neolithic forms, where they have probably been used as picks or tools for agricultural purposes, and, moreover, the experience of our own large prehistoric flint workshops has shown that in the formation of the more improved forms of celts and axes of the neolithic age, a flint passes through a stage in which it very closely resembles a palæolithic implement, and if abandoned in a half-finished state, might easily be mistaken for such; besides which, in a country like South Africa, inhabited until quite modern times by savages, it was quite possible that the earliest phase of art corresponding to our palæolithic era might have continued to a much later period than in those parts of the world in which civilization has earlier developed itself. Under these circumstances anthropologists wisely suspended their judgment upon the occurrence of these early forms of implements in South Africa, until their age could be fixed by geological evidence. This evidence Mr. Gooch has now supplied. By means of well executed plans and sections which, as an engineer, he has been able to supply, he has shown that the rudest forms of implements occur in yellow sandy marl mixed with stones, on

the sides of the valleys 25, 50, and 100 feet above the present beds of the rivers, in positions corresponding precisely to those of the implement-bearing gravels of Europe. Further than this he has found them in red earth, which he conjectures to have been deposited previously to the formation of the present river system of the country, and corresponding perhaps to our glacial epoch. I do not perceive that he has actually traced the tongue-shaped implements that I have spoken of to these deposits, but he has shown that the implements and flakes found in the earliest deposits are the rudest; and that a gradual improvement corresponding to the development from palæolithic to neolithic implements in this country has taken place with the advance of time, and that they have been gradually formed out of more suitable materials. The geology of Natal and the Cape of Good Hope has been so little studied, that Mr. Gooch has not yet been able to associate these evidences of man's hand with earlier species of animals. This important part of the subject, therefore, remains for future explorers, but apart from this, if the Institute had been the means of producing nothing more during the present year than this valuable communication from Mr. Gooch, it might have been congratulated in making an important step in the progress of prehistoric research.

4. "On the Discovery of Chert Implements in the Gravel of the Nile Valley," by General Pitt Rivers. In Egypt, as in South Africa, implements of palæolithic type have for some years been found on the surface, but, for the same reasons given above, anthropologists have hesitated to pronounce positively as to their age, until geological evidence of their "gisement" was forthcoming, a precaution rendered all the more necessary in this case from the known fact that knives of flint were used for embalming the Egyptian mummies. Whilst travelling in Egypt in March of the year 1881, I was fortunate enough to discover flakes and an implement of undoubted human fabrication, in the gravel of the Nile Valley near Thebes, 6 to 10 feet deep, beneath stratified deposits of mud and gravel. This gravel had become so hard in Egyptian times as to enable

them to cut flat-topped chambers and square pillars out of it, which had retained the sharpness of the outline to the present day. Some of the flakes were chipped out of the gravel in the sides of the tombs, thereby proving the great antiquity of the flints, which were deposited during the formation of the gravel. As in the case of the South African deposits, I failed to discover animal remains in the gravel in association with these implements. This, then, is the second occasion on which, during the present year, the existence of a palæolithic period has been fixed by geological evidence on the continent of Africa.

5. "On the Human Fossil at Nice," by Alfred Tylor, Esq., F.G.S. In this paper Mr. Tylor gives a succinct account, by means of sections taken by himself, of the discovery by M. Jochim, in 1880, of a human skeleton in quaternary deposits near Nice. Mr. Tylor believes that this skeleton was not an interment but a true fossil, having been floated into the quaternary deposit whilst it was in process of formation. He believes the deposit to have been caused during a pluvial period the existence of which he has discussed in previous publications. The jaw and other bones he considers to afford corroborative evidence of its belonging to a very early period. The paper is one of considerable interest both on account of the original observations made by Mr. Tylor himself, and his opinion on the views entertained by M. Desor and other geologists who have written on the subject.

6. "Sepulchral remains at Rathdown, Co. Wicklow," by G. A. Kinahan. The graves contained burnt bones and the remains of two urns, the clay of the urns being mixed with grains of mica.

7. "Excavations in Tumuli, near Copiapó in Chili," by J. H. Madge. The contents of these graves appear to be of the usual character, the most remarkable object being a skeleton supposed to be that of a Spaniard, but since pronounced by Professor Flower to be that of a native, which had the marks of eight arrow wounds. The eighth vertebra and corresponding left rib has marks in three distinct places caused

by one arrow which, striking the rib, took out a splinter of bone, again passing through the same rib, where it was connected with the back, it penetrated the vertebra, and was found embedded in the bone, thereby affording proof, if proof were wanting, of the efficiency of flint-pointed arrows for the purposes for which they are constructed.

Another point of a flint arrow-head was found in one of the ribs. All the wounds appear to have been delivered from the right side.

8. "On some Stone Implements from British Guiana," by E. F. im Thurn. Mr. im Thurn commences with an important observation, to account for the fact that only implements of ruder kinds are found in the kitchen middens of British Guiana, which he believes to have been made by the Caribs of the islands, none of the more elaborately formed inplements which the Caribs make having been found in any of them. He says the Caribs are in the habit of making highly finished stone implements which they never use, but hang up only as ornaments, to exhibit the perfection of their art. Long ago, when discussing the possible use of the elaborately serrated chert implements of the Caribs, one of the best of which is in my museum, I hazarded an opinion that it was merely a work of fancy, intended to show the skill of the fabricator, rather than for any purpose of utility. Perhaps we do not sufficiently consider this trait of the human character in reviewing the work of savages. The highly ornamented handles of their common utensils, the prodigious skill and finished decoration given to their flint implements, notably those to the stone implements from Denmark, the elaborate devices and ornamentation of their pottery, that of the lower phases of civilization being more highly ornamented than the pottery of a succeeding age,—all this affords evidence of the time devoted to superfluities in an early condition of culture. The same thing applies with equal force to those of our own time, whom necessity does not compel to devote their time to useful objects. It lies at the root of all games which, useless in themselves, are indulged in by persons who have nothing better to do, as an

exhibition of acquired skill. When we see in our own days how large a share of time is occupied in works of sheer vanity, I think this element should enter largely into our estimate of prehistoric man. Stone adzes in British Guiana are chiefly used now by the pottery makers for smoothing their vessels. This throws light on the fact that stone celts have been found in the pottery kilns of the Romans in Auvergne. In the absence of the axe, smooth pebbles are used, as is the case with the commoner class of pottery in Brittany at the present time. They are in the habit of painting their stone implements, of which a considerable number are kept in store by them.

9. "On the Earthworks of the Yorkshire Wolds and Excavations in Dane's Dyke," by General Pitt Rivers. I show that the Dykes of the Wolds hang together as a system of military defence, and appear to be the work of a people at war with the inhabitants of the interior, and that the Dane's Dyke on Flamborough Head is in a position to form a base of operations for the whole of them, whether they were invaders landing on the coast, or natives driven to the sea by an inland enemy. I then describe some excavations made by me in this Dane's Dyke, and give evidence of high probability approaching proof that it was erected not later than the Bronze Age, when flint was still employed, and that the defenders worked flint on the rampart after it had been finished. I then discuss the question as to what quarter the invaders, if invaders they were, are likely to have come from, and show that the absence of the characteristic ornaments and forms of Denmark, make it unlikely they should have come from thence, and probable that, assuming them to be invaders, they came from further south, or else that, supposing them to be the work of a people driven to the coast, they must have imported their Bronze culture from some primitive source. Absolute proof of the connection of the Dane's Dyke with the Dykes of the Wolds, beyond what is afforded by military considerations, can only result from further extensive excavations, and will probably be a work of great labour and expense. If life were secured,

one would prefer to wait until further evidence had accumulated; but in this, as in so many anthropological investigations, we must put aside all idea of finality, and rest satisfied for the time being with an imperfect work. The Dyke system of Great Britain, covering so large an area of our soil, and affording, when viewed by a military eye, clear evidence of the direction in which the people who made them were facing, during the extensive wars of prehistoric times, is no doubt destined to occupy the attention of future anthropologists, and to throw much light on the migration of tribes. That the Dykes served other purposes than those of defence seems very probable, but of the defensive character of some of them there can be little doubt. Excavations only can determine satisfactorily the period to which they belong.

10. "Account of the Discovery of Six Ancient Dwellings, found under or near to British Barrows on the Yorkshire Wolds," by J. R. Mortimer, Esq. Mr. Mortimer here gives a description of British dwellings, some formed with circles of upright stakes, and others excavated in the ground and roofed over; and he shows that they were probably burnt, perhaps at the death of the owners, and tumuli raised over them containing the remains of the dead. This is important in its bearing upon the custom of burying in the habitation of the deceased person, which, as is well known, is practised by many barbarous people at the present time. I have myself lately found evidence of the same custom in Dorsetshire. Numbers of pits which I excavated contained remains which proved that they were not graves, but probably pits, perhaps refuse pits, attached to the dwellings. In one of these, of the Romano-British period, a crouched-up skeleton was found carefully interred on its side. This must have been an exceptional case in which the deceased, perhaps the owner of the dwelling, was interred in his own house.

These and other communications from Mr. Mortimer form a valuable supplement to Canon Greenwell's long and careful inquiry into the tumuli of the Yorkshire Wolds. That archæo-

logical investigations of this nature, when carefully co
are of the utmost anthropological value none can doubt,
such as are impatient of evidence, fond of hasty, flimsy ge
sation upon imperfect data, and careless, so long as I
interest is satisfied, whether their deductions stand the
time.

PHYSICAL ANTHROPOLOGY.—*Three Papers.*

1. "A new Instrument for determining the Facial Angle
W. G. Atkinson. Mr. Atkinson's instrument is ingenious
well worthy of holding a place with others of the same k
assuming that it is of importance the facial angle should
taken. If I may venture to express my own opinion on t
subject, it is that we should carefully keep in view the obj
of the measurement in question, and take the simplest and m
convenient method of obtaining it.

Now the object of the measurement undoubtedly is t
ascertain the degree of prognacity of a skull, because th
development of the jaws, or rather it may be more proper t
say, the non-development of the intellectual parts of the hea
in reference to the jaws, indicates an approach towards the
lower forms of life. It is desirable that the degree of prognacity
should be expressed in figures, but it is immaterial whether
figures represent a proportional measurement or an angle. The
measurement from the basion to the nasion, and from the basion
to the alveolar point, taking the first at 100, represents the
degree of prognacity of the face, and has the merit of being
able to be taken with the same instrument that is used for
measuring the other parts of the skull, a point of consider-
able importance to the explorer of prehistoric remains in
which human skeletons occur. To my mind, therefore, the
gnathic or alveolar index as proposed by Professor Flower is
sufficient for the purpose. There is no particular reason
that I am aware of for referring the facial angle to the visual
axis, and it is not desirable to multiply the measurements,
indeed it is very important to curtail them. The only question

appears to me, one to which I have adverted elsewhere, viz.: whether the common point of measurement should be the anterior margin of the foramen magnum, or the meatus auditorious, the latter point having the advantage of enabling a comparison between the living head and the skull. Also, whether it be the nasion or the ophryon to which the upper measurement is taken for a base of comparison matters little, provided uniformity of practice can be secured; both serve equally the desired purpose of ascertaining the relative length of the jaws. I make these remarks simply in the interest of uniformity and simplicity in the mode of measurement, the importance of which has been impressed upon me of late; the facial angle is, however, still used by physical anthropologists both in England and on the Continent, by whom the ingenuity of Mr. Atkinson's instrument will be duly appreciated.

2. "Five Naga Skulls," by Prof. G. D. Thane. These skulls are of moderate size, the cubical contents of the three males being 1377 cubic inches, and those of the two females being 1238 cubic inches. The average cephalic or breadth index is 78·1; the height index, 78·4; the average gnathic index, 98·6. They are characterised by high orbits and narrow nose: in other respects they exhibit Mongolian characteristics.

3. "On the Stature of the Inhabitants of Hungary," by Dr. Beddoe. This refers to the investigations of Drs. Körösi and Scheiber on the recruiting returns for the whole of Hungary. The stature of the various races stands in the following order, commencing with the highest, viz.: Vends, Germans, Croats, Slovaks, Jazyges, Jews, Roumanians, Magyars, Ruthenians, and Kunen (?) Kumanians, but I see it is stated that the average difference between the highest and the lowest of them does not exceed 1¼ inch. The recruiting returns of a country are not of very great value, owing to the rejecting standard, which in the Hungarian army is 1·554 metres, about 5 feet 1⅛ inch; but after calculating for growth, &c., Dr. Beddoe makes the average height of the German adult 5 feet 5½ inches, and of the Magyar and Slav 5 feet 5 inches. Dr. Scheiber finds the inhabitants of

the cities in Hungary taller than those of the rural districts, as did Quetelet in Belgium; but this Dr. Beddoe thinks is owing to there being more Germans and Jews in the towns. The rule in England is the reverse.

PHILOLOGY.—*One Paper.*

"Notes on the affinity of the Melanesian, Malay, and Polynesian Languages," by the Rev. R. H. Codrington. This paper not having as yet been printed, notice of it must be deferred.

SOCIOLOGY.—*Seven Papers.*

1. Miss Buckland gives a remarkably interesting résumé of M. Broca's investigation on the subject of trepanned and perforated human skulls which have been found in the caves of Marne, in the Department of Charente, belonging to the neolithic period, and which operation is still practised by the Kabyles of Algeria and in the Pacific Isles. Whether the facts will sustain a theory of such definite complexity as M. Broca appears to have based upon them must be left to the judgment of the medical profession of which Dr. Broca was so distinguished a member. One view, however, appears so reasonably to have suggested itself to the investigators of this subject that it may, I think, be accepted by anthropologists without cavil. I allude to the coincidence that appears to have existed between the hole bored in the human skull, and the holes bored in the cists and funeral urns of the dead, both being intended for the passage of the malign spirits to which maladies and death are so commonly attributed in early and barbaric ages. Miss Buckland hopes that by drawing attention to this subject care may be taken to ascertain whether or not similar evidence of trepanning may have existed amongst the people of the neolithic age in England.

2. "Notes on the Western Regions," translated from the "Tseen Han Shoo," by Mr. A. Wylie, and communicated by Mr. Howorth. This paper relates to the tribes and people in the neighbourhood of China between 207 B.C. and the year 9 A.D. Although it does not convey to the European mind any very

definite idea of time and place, there can be no doubt that it contains much potential usefulness. For the present, most of us will be content to regard it as a reserve store of information for future anthropologists when a greater knowledge of the Chinese people will enable them to take a more lively interest in the matters therein recorded.

3. "Thomas of Aquinum and Anthropology," by the Rev. W. S. Caiger. This paper is put forward for the purpose of showing how totally at variance with modern ideas are the writings of this philosopher, who has been upheld by the Roman Pontiff as an authority on matters anthropological. It is well occasionally to cast back into the dark ages in order to keep up a proper measure of self-esteem, even though nothing of anthropological value can be learnt from such an inquiry. Speaking of the Encyclical letter issued by the present Pope in favour of promoting scientific inquiry, it may be useful to take notice of this circumstance in its bearing upon modern investigation, and especially upon anthropological science. When in Brittany three years ago, having occasion to take the measure of a number of human skulls, which in that country are preserved in reliquaries in the churchyards, I was surprised to find on several occasions that I received assistance from the parish priest, a matter of some importance to me, as the Bretons themselves were extremely hostile to any interference with the remains of the dead. On one occasion this was explained to me by the Curé of one of the villages, who informed me that they had received instructions from the Pope in favour of promoting science. There can be little doubt that the Church of Rome, always wise in its generation, and perceiving that the teaching of the Church in physical matters has, in the long run, been compelled to bend to the discoveries of science, is endeavouring to utilise scientific investigation, in the hopes that under clever manipulalation it may, for the time being at any rate, be made to support some of its particular dogmas.

But from whatever cause this step may have been taken, anthropologists must hail it as a step in advance. We may

safely expect that the study of nature will, in the end, tend to the production of its legitimate fruits, rather than to the ripening of any extraneous blossoms which the Church may append to it. The example of the Church of Rome, I may add, might advantageously be followed by other churches into which the voice of reason is usually supposed to receive freer admittance.

4. "On a collection of Monumental Heads and artificially deformed Crania from Mallicollo, New Hebrides," by Professor Flower. Mr. Flower described several artificially deformed heads from this island, with a description of the process of deformity, sent by Mr. Boyd. This sets at rest the question as to the artificial character of the deformity. All the people on the south coast of the island practice it alike.

5. "On the Animism of the Indians of British Guiana," by E. F. im Thurn. The author gives many curious examples of the beliefs of these Indians. Amongst the most striking causes of hallucination are the vividness of their dreams, and the belief that all the incidents of a dream are actual occurrences in the career of a wandering spirit during sleep. An amusing instance of this is given. One evening around the camp fire, the conversation turned upon the Zulu war, which happened to be raging at the time. The party broke up and retired to rest, when in the middle of the night loud cries for help were heard from a negro who happened to be of the party. On investigating the cause of these screams, it was found that the unfortunate negro, as the representative of the African race, was receiving condign punishment for some offence, which since the party retired to rest he had committed, on the remote continent of Africa during the Zulu war, and nothing would persuade the Indian by whom the blows were inflicted, that the punishment was undeserved. This must add greatly to the complexity of life in British Guiana and to the difficulty of conducting matters to a rational issue.

6. "Notes on the Asiatic relations of Polynesian Culture," by Dr. E. B. Tylor. Mr. Tylor in a short note draws attention to some further evidence tending to establish connection in culture

between the Asiatic continent and the Polynesian Islands. Colonel Yule had pointed to several customs which prevailed throughout that region, and Mr. Tylor himself had shown the connection which existed in certain games and myths. I had also shown the identity of the prevailing ornament in New Zealand and New Guinea and its resemblance to forms in Assam and Upper India, and I have already in this address drawn attention to the use of panjies, of long shields of a peculiar form, pile buildings, and the custom of exposing skulls of animals or carved representations of them as an assertion of wealth, connecting the Nagas with the Andamanese and the people of the south. To these might be added the use of the blow pipe in various places, the employment of vessels with planks sewed together, the affinity of the stone implement of Polynesia and Burmah, and their dissimilarity to those of the rest of the world; a consideration of the line drawn between the use and non-use of the bow and the employment of shell trumpets throughout the region between India, Japan and New Zealand. These latter being natural productions would not imply connection in culture had it not been for certain peculiarities of form, their continuous distribution and their employment in a particular form of canoe, which is itself continuous. All these considerations tend in various degrees and in different directions, no less than affinities of language, to prove that communication has existed in times past along a region, the geographical features of which adapt it to become one of the great highways of the world, and at the same time indicate the probability that the various arts have been carried independently and not by means of any great racial or social intercourse.

Mr. Tylor now shows that the use of the nose flute occurs in Fiji, Society Islands, Tonga, New Zealand, North Australia, and India, and he even suggests the possibility of the connection of certain myths and poems in Scandinavia. It seems to me that these connections, when proved, need not in all cases be taken to imply constant intercourse, but may have taken place through the agency of casual wanderers and people of the Gipsy class.

When, however, absolute identity is found to exist in the means of locomotion, such as is afforded by the use of the outrigger canoe, over the whole of the Indian and Pacific Islands, the distribution of which formed the subject of a paper read by me before the Institute some time ago, we need not, I think, be surprised that such connections should have existed; indeed, it appears certain that they must have done so. I would lay special stress on the fact that a circle may be drawn around the distribution of the outrigger, beyond which nothing of the kind appears on the face of the globe, and that the region of its distribution coincides to a great extent with the other connections to which attention has been drawn.

7. "Fijian Riddles," by the Rev. Lorimer Fison. Not the least interesting portion of this paper is a digression in which the author suggests that the employment of houses built on piles is a survival of houses built on mounds which prevail in Fiji, or perhaps he thinks it may represent the mingling of two races having different forms of architecture. The riddles throw some light on their customs and arts, but would seem to us more like a figurative mode of speech than riddles. It is quite an institution, however, amongst them, and the formality with which they are propounded must make society in Fiji as tedious as any tea party of young ladies in this country.

8. "Description of Andamanese Bone Necklaces," by Dr. Allen Thomson. In this paper Dr. Thomson describes anatomically the ingredients of a number of bone necklaces, the chief part of which were brought by Mr. E. H. Man from the Andamans. This investigation shows amongst other things that the bones of the pig were used for this purpose, which puts to flight the idea which had suggested itself, that the pig might have been excluded as an unclean animal. The bones are both human and animal, the former probably memorial; and besides these, wooden substances are employed which, Dr. Thomson suggests, were introduced as imitations of the bones.

It cannot, I think, fail to encourage descriptive ethnologists to give full and accurate accounts, with carefully formed

collections of the arts of savages, when it is seen that a single class of objects, and that so apparently uninviting a one as bone necklaces, is capable of producing a communication of so much value and interest, from a distinguished ex-President of the British Association. Had not the collection of these objects been complete, and embraced every variety of the necklaces in use by the people, the materials for an exhaustive investigation of this nature would have been wanting. Nothing gives one a better idea of the immense field of research which will lie open to the anthropologist, when observations will be accurately made and anthropology really become a science.

APPLIED ANTHROPOLOGY.—*One Paper.*

"The Laws affecting the Relations between Civilized and Savage Life, as bearing on the dealings of Colonists with Aborigines," by Sir Bartle Frere, G.C.B., &c. Concerning this valuable paper, which deserves to be read by all anthropologists, I will only say that I have ventured to classify it separately under the head of Applied Anthropology. It has often been urged against anthropology that it has no practical result; that our deductions may be more or less interesting in the abstract, but that they have no useful bearing on the affairs of life. To a certain extent this charge against us is not unfounded, but we may be certain that if such is the case we ourselves rather than our science are to blame, for no subject is more capable of being turned to useful account than the scientific study of mankind. Nothing, indeed, can be more foreign to our subject than party politics, but for this very reason, if for no other, we should endeavour to give a practical turn to our science. The moment also is auspicious for such an attempt. Party politics run so high, that measures are rarely considered upon their merits representative institutions have been carried so far that ignorance is better represented than knowledge, and knowledge is swamped by ignorance; the fundamental laws of society are disregarded in favour of a time-serving policy, and we run the risk of a relapse of civilisation. If it is said that scientific men have

seldom the experience necessary for practical statesmanship: this does not apply to anthropology, for on looking over the list of contributors to our Journal, we find that on former, no less than on the present occasion, it has included the names of Governors of Colonies, and others who are at the same time Statesmen and men of science. But if it is for the interest of Society that the voice of science should be heard on the affairs of the day, it is equally for the interests of our Society that its utility should be recognised. There is a practical quality of the English mind which prevents the people from ever taking a lively interest in ideas and studies, the present usefulness of which is doubtful. If we look at those Societies and subjects which flourish most vigorously in this country, we shall find that they all have a practical as well as a scientific side, and I believe that it is to this cause, as much as to any other, that anthropology in England has not received that full measure of support from the public which it has received from science.

Dr. ALLEN THOMSON moved, and Canon GREENWELL seconded, a vote of thanks to the President, which was carried unanimously.

The Scrutineers reported the result of the ballot, and the following gentlemen were declared to be duly elected to serve as Officers and Council for the ensuing year:—

President.—Major-General Pitt Rivers, F.R.S.

Vice Presidents.—Hyde Clarke, Esq.; John Evans, Esq., D.C.L., F.R.S.; Prof. W. H. Flower, F.R.S.; Francis Galton, Esq., F.R.S.; A. Thomson, Esq., M.D., F.R.S.; E. B. Tylor, Esq., D.C.L., F.R.S.

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On the motion of Mr. A. L. LEWIS, seconded by Mr. A. H. KEANE, thanks were returned to the Auditors, the Scrutineers, and the retiring members of the Council.

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